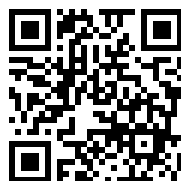

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THE ARMY REVIEW

Published under the direction of the
Chief of the Imperial General Staff.

Vol. III. No. 1.

JULY, 1912.

ISSUED QUARTERLY.

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NOTICE.

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I.

OUR REQUIREMENTS FOR HOME DEFENCE.

A CONSIDERATION, FROM A MILITARY POINT OF VIEW, OF THE PROPOSALS OF THE NATIONAL SERVICE LEAGUE, AS SET FORTH BY COLONEL A. KEENE, D.S.O., IN *THE ARMY REVIEW* OF APRIL, 1912.

COLONEL KEENE informs us that the proposals of the National Service League are based on two assumptions, viz. :—

- (1) That the object of the force maintained for home defence is to enable the Expeditionary Force and the Navy to be sent away from the United Kingdom without delay, in case of necessity.
- (2) That, to enable us to attain this object, we require a larger and more highly-trained force than the Territorial Army.

Whether the first of these assumptions is justified or not is, primarily, a question of State policy. The Government alone is responsible for deciding what wars, if any, we may be compelled to undertake in defence of the honour and the interests of the Empire, and, therefore, what forces, naval and military, we require to ensure the success of national policy.

It is true that, however peacefully inclined a nation may be there is always a possibility that war may be forced on it by the aggressive policy of other States ; but the Government still remains the only qualified and responsible judge as to this possibility ; as to how far the danger can be minimised by diplomatic means, and as to who would be our friends and who our enemies if we should be compelled to fight.

In short, policy and armed strength must be reciprocative, the force to be maintained being dependent on the policy to be adopted, while the policy to be adopted must be limited by the force that can be maintained ; and it is the function of the Government to adjust the balance between policy and armed strength. The responsibility of the Chiefs of the Army and Navy in relation to the adjustment of this balance is limited to advising as to the size and nature of the forces required to ensure a reasonable chance of success in war *under*

any given conditions, and as to how the greatest military value can be obtained *for any given sum of money* provided by the Government for military purposes. It lies with the Government to define the conditions to be dealt with and to decide as to the funds to be made available for the purpose.

When we attempt to consider how this theory is to be put into practice, however, we find ourselves face to face with various difficulties. Navies and armies cannot be called into being at a moment's notice. They must be raised, organized, equipped, and trained years in advance of possible requirements if efficiency is to be attained—especially the efficiency of higher Commanders and Staffs on whom so much depends. Therefore our possible requirements must be laid down years beforehand. But how can the possible requirements of an Empire such as ours be foreseen years in advance? The number of possible complications that a British Government has to consider must be almost infinite, and the political factors on which possible complications depend change from time to time.

Under such conditions there is only one course open. Our preparations must be designed to enable us to cope with the most serious situation that may be regarded as reasonably possible. But that situation must be defined before the preparations necessary to enable it to be dealt with can be calculated. It is the Government only that can define it, and since it is clearly impossible for any government to publish to the world its forecast of political complications considered likely to arise—such problems being matters to be dealt with, in secret, by the Committee of Imperial Defence which exists for the purpose—it follows that no discussion in the pages of **THE ARMY REVIEW** can be based on any definite, authorized problem.

It is only from a broad general point of view, therefore, and not in relation to any definite problem that the assumptions on which the proposals of the National Service League are based can be considered here. In this, perhaps, we are no worse off than the League itself was in formulating its proposals, since it is not possible that it could have had before it any clearly defined situation laid down by those to whom the shaping of national policy has been confided.

The *political* possibility of our becoming involved in a war with a great naval and military Power is a question on which we are not qualified to give an opinion. But admitting that possibility, as a basis for argument, the scale of any attack to which the United Kingdom might be exposed under those conditions then becomes primarily a problem for the Naval Authorities, since, from the strategical point of view, the possibility of formidable numbers of hostile troops being landed in the United Kingdom depends chiefly on relative naval strength and on the use made of that strength. We do not claim that the Navy, by itself, could place the security of these Islands beyond any shadow of doubt. It takes two to make a quarrel, and if one of

the two could place results beyond a doubt we may suppose that the other would not be so foolish as to fight. But we do claim that the Navy can give us a reasonable assurance against invasion in force, so long as our naval supremacy in home waters is maintained; that this assurance has been given, more than once, on responsible authority, and that a reasonable assurance, by responsible authority, is the most that a nation can hope for—especially a nation which is not prepared to put training in arms before other considerations.

It may be argued, however, that this immunity from risk of serious invasion can be ensured only by loosening our hold on other parts of the Empire and on the routes connecting us therewith—that, in short, sufficient strength in home waters can be purchased only at the cost of freedom of action for the Navy.

Whether this be true or not is a question of relative naval strength. But let us admit for the purpose of argument that it is true. Would the proposals of the National Service League enable us to release the navy from home waters?

We fear not, for the following reasons:—

It may be claimed that the proposals of the League would give us a numerically stronger¹ and better trained home-defence force than we possess now, but that force would still be small and indifferently trained as compared with the armies of the great military Powers. If any of these were free to transport a large army across the seas we cannot hope that any partially trained force would suffice to prevent an attempt to invade us, and something much more drastic than the National Service League proposals would be necessary to give us any chance of defeating the invasion that might then become possible. It is, in fact, naval strength and not military strength that stands between us and the possibility of serious invasion, and no comparatively small addition to our military strength would suffice to alter this condition. We must have in home waters either the naval strength considered necessary to make serious invasion impossible, or less than that. If we accept less, invasion becomes possible. In face of that possibility is there the remotest chance that the Government would ever consent, or that the people would permit them to consent, to reduce our naval forces in home waters below what is thought necessary to secure us against invasion? Would any soldier or sailor recommend them to do so? The United Kingdom is the heart of the Empire, and the base of operations for the defence of the Empire. Its security must be our paramount consideration, not only from a narrow and selfish but from an Imperial point of view. An invasion, even if it ultimately failed, would throw everything out of gear for the time being, and it surely can not be denied that it would be folly to accept all the risks and misery of invasion if we can by any means prevent the possibility

¹ See, however, the notes at the end of this article.

of it. If this be admitted, it follows that, so long as it is sea power that constitutes our best safeguard against invasion, it must be sound Imperial strategy to concentrate our naval force in such a manner as to make invasion impossible even if outlying parts of the Empire are considered to be thereby endangered.

If such concentration does endanger the security of other parts of the Empire, even temporarily, it is much to be deplored, and we have no doubt that everyone would combine to urge that such a state of affairs should be remedied. But the remedy would seem to lie in the direction of strengthening the Navy and increasing the power of resistance of our oversea possessions and not in making a small addition to our home defence forces, which, while costing several millions, would fail, so far as we can judge, to fulfil the first purpose in view, viz., to give full freedom of action to the Navy.

But, in pursuing this train of thought, another question arises. It may be sound strategy to leave our oversea possessions to defend themselves, until we can come to their relief, in order to ensure the security of the Imperial Base of Operations. But, if the Navy is tied to home waters are we not risking our trade routes and the security of the supplies on which our existence and our power to carry on a war depend?

Perhaps we are. But can we find no better solution than a choice between two evils, of which one is just as great as the other? Must we choose between the chance of invasion and the chance of starvation? Again the remedy seems to lie—if a remedy be required—in strengthening the Navy and the garrisons protecting our harbours and our coaling stations abroad. Even as we stand, and as we are justified in hoping that we shall continue to stand for many years to come, we are capable of bringing a local naval superiority to bear in home waters, under any conditions that can reasonably be imagined, and of still having some ships left over. Unless the fleets of the world combine against us our enemy's ships cannot be everywhere. In these days of steam, and wireless telegraphy, it is not easy for hostile ships to escape observation. If the enemy detaches, so can we. If he can employ commerce destroyers we are at least as well able to employ commerce protectors. We have a great advantage in harbours of refuge and coaling stations so long as we provide adequately for their defence. The ships conveying supplies can be moved in fleets under escort if necessary. Finally, their safe arrival would not be ensured by protecting distant waters while leaving our home waters inadequately guarded.

There is yet another point to be considered, the danger of the theory of naval strength in home waters being carried too far—of our ships being tied to port by popular clamour, and of offensive and detached operations being forbidden when such operations would be necessary and wise. It may fairly be asked whether a stronger home

defence army would not calm the popular mind and so ensure for the Navy such freedom of action as the strategical situation might demand.

It cannot be denied that there is much truth in this argument. History teems with incidents showing how wise strategy may be prevented, and unwise measures insisted on, by ignorant popular clamour. We may suppose that Nelson had this danger in mind when he urged on the public that, in case of war, every ship and every Regular soldier should be sent abroad "leaving England to be protected by the courage of her sons at home." It would be folly to refuse to recognize the danger—to take no steps to prevent it. If money were no object, or if the National Service League's proposals were to cost nothing, we might admit those proposals as a possible antidote to popular alarm. But they would cost money and money is an object. If our views are correct the money could be better spent, and money spent badly must be diverted from a better purpose so long as funds are limited. Is there no remedy but to divert funds from what we may consider to be wise measures to what we may regard as unwise measures? It seems to us that a possible remedy is to educate public opinion. It is with that object that we have undertaken this paper. The hope of educating public opinion may be a broken reed to rely on. It will surely prove a broken reed unless influential, thinking men are unanimous as to the principles of defence to be adopted, and preach those principles with one voice. We shall discuss the subject further in the subsequent pages of this article, where we endeavour to deal with the question of giving freedom of action to the Expeditionary Force.

Before turning to that question we feel that an apology is due from us for having dealt at such length, or indeed dealt at all, with the naval side of the problem. Our only excuse is that the question of Home and Imperial defence is based primarily on naval strength, and it is impossible to deal with our requirements on land without first being clear as to the part to be played by the Navy.

When we turn to the question of the employment of the Expeditionary Force we feel at once the difficulty of not having a well defined problem to work on. Our Army has had so many different situations to deal with in the past—it may have so many different situations to deal with in the future—that, with no particular problem to examine, one feels like a mariner at sea without a compass.

There are some clearly defined landmarks for our guidance, however, and, under the conditions, we must endeavour to steer by them.

As we are situated at present, and so far as it is possible to see into the future, there is no Power outside Europe which could, by any stretch of imagination, threaten to invade the United Kingdom. Apart from any question of the possibility of a quarrel with Powers outside Europe, they are all either too distant or too weak on sea or land to dream of such an enterprise. Therefore the existence of

any danger of invasion, or fear of invasion, real or imaginary, implies a war, or a fear of war, between ourselves and some European Power or Powers.

Assuming the possibility of such a war, our military strategy would depend a good deal on whether we had, or had not, allies in Europe. Without such allies it may be laid down as an axiom that we should certainly not think of employing our comparatively diminutive Expeditionary Force, single handed, on the Continent.

Whether fighting with or without Continental allies, however, the security of the United Kingdom, as our base of operations, would still be a primary necessity, and it would still depend, primarily, on naval superiority in home waters. The principles on which our naval strategy should be based, therefore, would remain the same in either case, although the degree of concentration in home waters necessary, and the consequent degree of risk to be taken elsewhere, would vary according to the relative naval strength opposed to us.

From the military—as distinct from the naval—point of view, however, the strategical problem presented would differ considerably in each case. Without allies on the Continent there could be no question of employing an army there. With allies on the Continent the question of employing an army there immediately arises.

In this paper we will not attempt to consider the problems of a war single-handed between ourselves and a European Power or Powers, which, so far as we can see, would by no means necessarily constitute a “worst possible case,” unless our policy should bring about a situation in which a combination of Powers might be capable of wresting from us command of the sea.

If involved in a war between European Powers, in which, on the supposition just made, we should have allies on the Continent, the first question to be considered is whether it would be sound strategy to employ the Expeditionary Force outside the United Kingdom.

We have taken it as an axiom in Imperial strategy that the security of the United Kingdom itself is of paramount importance, and we have argued that, so long as there is a possibility of serious danger to that security, we must concentrate our efforts on overcoming that danger, even at some risk to our possessions elsewhere. We may hope to regain them if all goes well at home, but if we are defeated at home we lose them without hope of recovering possession. We have already claimed that the security of the United Kingdom depends primarily on naval superiority in home waters. It seems to us that the possibility of being able to employ the Expeditionary Force outside the United Kingdom, if we should desire to do so, also depends primarily on the same factor.

If we are in any serious doubt of the superiority of our Navy in home waters we are unable to believe that either the people or the Government would permit the Expeditionary Force to leave this

country, even if we had a home defence army on the scale proposed by the National Service League, nor is it likely that the Navy would undertake the responsibility of transporting the Expeditionary Force in such circumstances. We have here, therefore, a further argument for making sure of naval superiority in home waters if there is to be any question of sending the Expeditionary Force out of the kingdom.

No doubt a difficult situation would arise if we had sent the Expeditionary Force out of Europe when everything seemed peaceful near home, and if a European war on a serious scale involving us broke out after it had gone. Such conditions, however, would not alter the principles that should guide us. If the "decisive point" were in Europe our correct strategy would be to bring the Expeditionary Force back if possible, confining our efforts elsewhere to holding out for the time being. Whether it would be possible to bring the Expeditionary Force back, if considered desirable to do so on military grounds, would be mainly a naval problem, in which the National Service League proposals would not help us, in our opinion, because for the reasons already explained it does not appear that they would suffice to justify our taking the risk of making any such reduction of our fleets in home waters as might make invasion possible, in order to provide escorts for the transports bringing the Expeditionary Force home. If such escorts are to be made available they must be found from ships surplus to our requirements in home waters.

Assuming that the Expeditionary Force had not left the United Kingdom before the outbreak of such a war as we are discussing, we maintain that, for the reasons given above, it would not be allowed to leave after the outbreak of war, however much we might desire to send it, unless we had a naval superiority in home waters, even though the National Service League's proposals had been adopted.

But granting a naval superiority in home waters, and granting that such superiority would constitute a reasonable guarantee against invasion in force, would it be strategically sound to send the Expeditionary Force out of the kingdom? In considering this here we will ignore, for the moment, the possible influence of ignorant public opinion, returning to that point later.

On the question of the strategical advisability of sending the Expeditionary Force out of the United Kingdom, under the conditions stated above, we have several strategical principles for our guidance.²

In the first place it has been proved over and over again, and is universally admitted, that sea power alone cannot bring a Continental Power to its knees. A superior sea power might possibly starve us

² We realize that the foregoing examination of our so-called "landmarks" goes perilously near to the statement of a problem. We can only plead in extenuation that without some such broad outline to work on, it would be impossible to discuss the proposals of the National Service League.

into submission ; our superior sea power might cause grave loss and distress to a Continental nation, but it could not of itself ensure a speedy termination to a war. Nelson's advice to " send every Regular soldier " abroad shows that he realized this. We were supreme on the sea after Trafalgar, but it required 10 years of war on land after Trafalgar to break Napoleon's power.

Another important principle, accepted as the foundation of all strategy, is that of bringing superior force to bear at a decisive place and time.

Under the conditions outlined above the decisive place for us would be, primarily, the seas round our coast. We must have superior naval force there, in time.

Having accomplished that, we claim that the decisive place on land would be shifted to outside the United Kingdom, and that an enemy cannot transfer it to the United Kingdom so long as we hold the seas. In the circumstances under consideration we have assumed that we have allies on the Continent. So long as we are not in danger of serious invasion at home, the decisive point for our Expeditionary Force would be where it could act in co-operation with our allies in endeavouring to defeat the enemy on land ; and it should act there in time to influence the results of the first big battle, which, according to general acceptance, would have a considerable effect on the eventual results of a war. We will give the arguments on which we base these views :—

In a struggle between Continental Powers such as we are imagining—such as Nelson was speaking of in 1802—attempted aggression by any one Power, or group of Powers, must call into play the utmost efforts of the remainder, as it did—though tardily—a century ago, the only alternative being to accept domination, which it is impossible to imagine that the threatened Power, or Powers, would do so long as it was possible to keep the field. In this we have, to some extent, a guarantee against invasion in force, since there is no Power, or reasonably probable combination of Powers, so invincibly strong as to be justified, in accordance with the dictates of sound strategy, in venturing to detach largely, in face of the hostility of the remainder, before its position at home had been secured by compelling the submission of dangerous neighbours. In fact, the same arguments as seem to make it necessary for us to retain a naval superiority in home waters, to cover our base of operations, would tend to induce our enemies to retain a military superiority on the Continent to secure their home territories. In employing our Expeditionary Force in co-operation with our allies on the Continent, therefore, we should be reducing the danger of the enemy being able to detach troops, in any considerable numbers, against the United Kingdom ; we should thereby be helping the Navy to prevent any chance of invasion ; and, in addition, we should be doing our share to prevent

a situation arising in which some great Continental Power, having secured its position at home, might be free to devote its whole attention to us, and perhaps to induce, or compel, others to join in a great combination against us.

These are strong reasons in favour of employing the Expeditionary Force abroad, so long as the Navy can give us a reasonable guarantee of security from serious invasion at home. To these reasons we can add another. If the Expeditionary Force were kept at home when not really necessary there, it could exercise no influence on the results of the war, and would be absolutely wasted. We should, in fact, be holding an unnecessarily large force in hand for defensive purposes, and thereby risking failure at what would really be the decisive point—perhaps the most serious error that can be made in war. As we have already pointed out, we cannot hope for certainties in war. We can only weigh advantages and disadvantages, and adopt the course which, on the whole, appears to offer the best promise of success. And when the arguments are fairly evenly balanced, we know that the bolder course is generally the wiser one. In the problem under discussion the balance of strategical argument seems to be decidedly in favour of sending the Expeditionary Force abroad if we have a reasonable assurance that it is not necessary at home.

We cordially agree with the desire of the National Service League to give freedom of action to the Navy, but, as we have already explained, it does not seem to us that the League's proposals would have any effect on the Navy's freedom of action. We also agree with the desire to ensure freedom of action for the Expeditionary Force, and we have endeavoured to define the extent of the freedom required. We come now to a closer examination of what it is that we must be prepared to meet at home if we should be involved in a war between European Powers, and on the assumption that we have a naval superiority in home waters.

We have been assured, by responsible authority, that so long as we have a naval superiority in home waters, 70,000 men in all is an outside estimate of the hostile forces which it might be possible to transport to our shores.

It may be argued that this estimate is merely an opinion, and that we cannot rely on its accuracy. We do not venture to claim that it is altogether beyond dispute. But we must have some definite foundations on which to base a strategical calculation. Without some generally accepted basis of argument we cannot expect any preparations to be carried out logically, thoroughly, and in combination, with the weight of public approval behind them. This estimate has been given by responsible authority, no doubt after very thorough consideration and on the best advice obtainable. War preparations and strategical plans have to be based on probabilities, not on certainties, and unless and until we are given a different estimate, on responsible authority,

we must work on this one, the reasonably probable accuracy of which we see no reason to doubt.

To meet this force of not more than 70,000 men, if it should succeed in landing, either in one or in several bodies, if the Expeditionary Force were out of the country we should still have various unallotted Regulars, the greater part (if not all) of the Special Reserve, and the whole of the Territorial Force; and it has been estimated by responsible authority that, after providing for all necessary garrisons, these at their present strength would enable us to place in the field organized forces amounting to approximately 230,000 men, including mounted troops and guns in proper proportion. We are well aware that a very large proportion of the officers and men in these forces would have had comparatively little training at the beginning of a war, and we do not, for a moment, claim that they would be capable then of meeting Regulars on level terms. But let us endeavour to look at things through the enemy's eyes for a moment, and consider what he would be capable of attempting and what it is likely that he might attempt, remembering that our basis of argument is that 70,000 men is the largest force that he could hope to land, in face of a superior navy; that the sea transport of military forces, without having complete command of the sea, is a most difficult and risky operation; and that, in the circumstances we are considering, the decisive place for the enemy would be on the Continent until he had secured his position there.

All these considerations make it most probable that no attempt would be made to send anything more than a detachment to the United Kingdom, acting in accordance with the principles that regulate the employment of detachments. Those principles are, briefly, that victory is won by bringing superior force to bear at a decisive place and time, and that the employment of detachments is justified only in so far as they assist in enabling that to be done by drawing off, or keeping off, superior hostile forces from the decisive place at the decisive time; that, therefore, detachments should be as few as possible, and as weak as is compatible with the object in view; and that they should rejoin the main army, if possible, as soon as they have fulfilled the object with which they were sent out.

These principles, under the conditions we are examining, point clearly to possible raids against the United Kingdom, intended to hamper our Navy by injuring local points of special importance, such as dockyards, and to frighten us into keeping the Expeditionary Force at home when its employment abroad would be hurtful to the enemy, and strategically wise from our point of view. They point to nothing worse than that, and if we were to permit ourselves to be frightened unnecessarily we should be playing the enemy's game.

Raids capable of exerting, and intended to exert, a local effect only cannot appreciably affect the results of a war unless they either

cause damage of serious importance to the Navy, or frighten us into unsound measures. We can guard against the former by fortifying and adequately garrisoning important points—which has been arranged for. How are we to guard against the latter? Certainly not, as it seems to us, by premature cries of “Wolf!”

The members of a raiding force are no more desirous of being killed or captured than any other body of men. Under the naval conditions we have assumed, the possible visits of such forces are likely to be brief—certainly not long enough to lay siege to a strongly fortified place, judging by the latest example of what such a siege means. Even if more than we anticipate should be ventured by a raiding force, what could it do in a hostile country, liable to attack all round, and having to guard every wagon accompanying it? We may remember that a sufficient supply of ammunition alone means a long train of wagons for a lengthy operation by a flying column; while if the raiders endeavoured to maintain a base and a line of communication they would have to guard both strongly. It seems to us that whatever opinion may be held as to the capability of the Territorial Force to stand up to Regular soldiers in a square fight, there can be no reasonable doubt that it would worry such a raiding force to death, or into surrender, in a very short time, wearing it out by a process of attrition if it could do nothing better.

When Nelson advised the nation to rely on the courage of her sons at home, we know from a memorandum written by him³ that he anticipated a possibility of a landing by 40,000 of Napoleon’s veterans, while the courage of our sons at home, so far as armed forces went, was represented at that time, according to Alison, by 80,000 Militia and 100,000 Volunteers. So far as we can gather, the latter were certainly not superior in training and were inferior in organization to our present Territorial Force, while they had neither electric telegraphs, nor railways, nor motor transport, nor even bicycles, to assist in their concentration. The quotation from Nelson, therefore, so far as it goes, seems an argument in favour of the view that the Territorial Force to-day could deal with a raid. If we value Nelson’s opinion, it certainly is an argument against allowing ourselves to be frightened into keeping the Expeditionary Force at home when it ought to be sent abroad.

But it may fairly be said, why not make still more sure? The National Service League’s proposals would make the Territorial Force stronger and better trained, and would help to ensure the despatch of the Expeditionary Force by allaying alarms at home. True. But, again at what cost, and with what results due to that cost?

Colonel Keene estimates the extra cost at £4,500,000. We fear

³ Quoted by Mahan in his “Life of Nelson.”

this is an under-estimate,⁴ but even accepting it as correct it is a large sum. If it comes out of the total now voted for the Army, a considerable reduction in the Expeditionary Force would be entailed, and we presume that neither the National Service League, nor anyone else who has studied the question, considers that the existing Expeditionary Force would be too large for our requirements if we had to send an army to the Continent.

If the £4,500,000 are not taken from the total now available for the Army, they must be added to it. If such an addition to our national expenditure is possible or necessary, and if the arguments we have given are correct, the money would be better expended in strengthening the forces—naval or military—that are liable to, and trained and available for, service whenever and wherever they may be required.⁵

The possibility of adding millions to our expenditure is not a question for us, but if they were to be added it is the legitimate function of the Naval and Military authorities to advise as to how the best value could be obtained for the money. Two fundamental principles of war are to reduce the force one employs *defensively* as low as possible in order to be able to *strike* as hard as possible, and to risk minor ills in order to secure great results. The proposals of the National Service League seem to us to be directly contrary to those principles, and it is for that reason, and that reason only, that we think them unsound. The League's proposals would give us a stronger defensive force than we appear to require; a force available for defence only, and intended to deal with minor ills, in the shape of raids, at the expense of, or instead of adding to, the forces available to seek out and to strike and damage the enemy at the decisive point and time.

Unless our arguments are wrong, our requirements may be summed up as follows :—

- (1) A sufficient navy to secure us both against invasion and to provide a reasonable degree of security for our ocean trade routes. The greater the margin we can afford, over and above that, the better no doubt, with due regard to other requirements, but that is a question for the Governments concerned in consultation with the Admiralty.
- (2) A home defence force to deal with possible raids. In our opinion, the Territorial Force, kept even approximately up to strength, together with the unallotted Regular troops and

⁴ *Vide* note at the end of this article.

⁵ We have not overlooked the fact that, in reorganizing our home defence forces, the possibility of providing for an expansion of the Expeditionary Force was one of the objects intended to be kept in view. The point is not of importance to our argument here, for the forces proposed by the National Service League would be practically no more capable than the Territorial Force of fulfilling that object without a period of training after embodiment.

various Special Reserve Units not required, at any rate immediately, outside the United Kingdom, would suffice for this so long as we have a naval superiority, and so long as specially important points, within reach of possible raids, are adequately fortified and garrisoned. The garrisons must include some Regular artillery and specialists, the remaining requirements being furnished from the home defence forces now available.

- (3) An Expeditionary Force highly trained, fully equipped with the best of everything and complete in every detail, capable of being mobilized very rapidly, and of being transported without delay to wherever it may be wanted. As to the size of this force, we shall add a few words further on in this article.
- (4) Adequate fortifications and garrisons⁶ for our coaling stations and harbours in all parts of the world, to enable them to resist raids and to hold out, if attacked, until we can relieve them. If we are victorious in the main theatre of war, we shall thereby ensure their relief automatically.

Under this head we must include provision for periodical relief of garrisons furnished from home. Under this head, too, we include the garrisons of India, and of our self-governing Dominions, which are all taking steps to provide for their own home defence.

- (5) Finally, we require a general agreement amongst the leaders of public opinion, not only in the United Kingdom but in the Empire, as to the correct principles on which to prepare for possible eventualities, and on which to act if action should become necessary ; and we require that every possible means shall be taken to educate the public in these principles. We recognize that this question of education is so important that we think it should be bracketed with a strong navy as forming together the two most important factors in any scheme of defence, on which the success of that scheme must mainly depend. We acknowledge to the full the danger of a misguided public opinion, so much so that we realize many thinking men may have been led to conclude that in itself it provides a justification for the National Service League's proposals. To such we can only say, with all respect, that we fear they are misguiding, instead of educating, public opinion

⁶ Considerations of space do not permit of our discussing here the difficult question of the possibility, on a voluntary-enlistment basis, of increasing (if necessary) these garrisons without weakening the Expeditionary Force. But, so far as that consideration may be taken as an objection to our proposals, we may point out, in passing, that the proposals of the National Service League are based on a measure of compulsion.

by urging that the existing organization for home defence is insufficient for our requirements, when, in fact, we have reasonable grounds for believing that it is sufficient. As a nation we flatter ourselves that our instincts are sound. Will not the view—as we believe, the only sound view—appeal to the national instincts that it is better to put our efforts into preventing the possibility of an invasion rather than into measures to defeat an invasion which we have needlessly allowed to become possible? Do not our instincts already run altogether in the direction of sea power? Is it impossible, then, to educate the people into accepting the view that money proposed to be spent on home defence forces, beyond what we require to deal with raids, would be better spent on the Navy, if the Navy is not strong enough already? That is the first step in education. The next is that, having made the Navy so strong that invasion is practically impossible, having done what we can to secure our ocean trade routes and to enable our oversea possessions to defend themselves in case of necessity, and having provided the necessary measures of home defence, we still require something further—*viz.*, a sufficient and efficient land force, capable of seeking out the enemy—instead of waiting here for an enemy who cannot come—and of forcing him to make peace. What may constitute a sufficiency for the purpose is too big a question to attempt to examine at length here, but we hope to be forgiven for adding a few words on the subject.

We have an ample share of the Globe already. We do not want more. We have, therefore, no possible object in attacking anyone except in self-defence; nor could we hope, under any conditions, to keep up a sufficient Regular Army to justify any idea of attacking a great military Power single-handed. If we have to fight on the Continent, we must leave it to our Government to see that we do not fight without friends. To ensure this, we must be prepared to give help in order to receive help. The political combinations that it may be possible to arrange, and the size of the Expeditionary Force required in accordance with such combinations, are matters for the Government in secret consultation with their duly-appointed advisers. No one outside the Government can arrange such matters. If a nation does not trust its Government, it may be able to remove it and to substitute another, but without a Government it cannot either manage its own affairs, or treat with foreign nations. It cannot take over the functions of the Government that it appoints. One of those functions is to decide on the strength and the nature of the forces required by national policy. Until the Government tell us that our Expeditionary Force is too small to enable them to carry out a sound national policy, we must presume that it is sufficient for

requirements, and we must rely on the Government to foresee the need for augmentation in time for the necessary additions to be made and perfected before the machine is put to the test of war.

Against possible neglect on the part of a Government we have a constitutional safeguard. According to our system, the Opposition in Parliament has the right and the duty of questioning the sufficiency of the measures taken and of showing, if it can be shown, that they are insufficient. But the *principles* of military defence should be placed beyond question; and our object in this article must be limited to endeavouring to establish those principles. In our view, it is a principle that if additions should be required to our military forces they should be made, once the necessary security at home has been provided for, not to our defensive but to our offensive forces, and if the lever of universal liability to serve the country is ever to be applied this principle must guide us in applying it. If the Oversea Dominions, as well as ourselves, accept this principle, the offensive as well as the defensive strength of the Empire against possible attack might be vastly increased, in our opinion, if increase should be considered necessary.

Colonel Keene prefaced his article in *THE ARMY REVIEW* with an extract from a speech of Nelson's to which we have alluded more than once in the preceding pages. The extract quoted is a valuable contribution to a discussion of our requirements, but the more carefully we consider the meaning of Nelson's advice, and the more thoroughly we examine the political, naval, and military situation at the time when he gave that advice, the more convinced we become that our view of the solution of the problem is more in accordance with Nelson's advice than are the proposals of the National Service League. For nine years before Nelson spoke the words quoted we had been engaged, in alliance with other Powers, equally interested, in an endeavour to curb the growth of Napoleon's power. During those nine years our fleets had increased by a half, our Regular Army had been more than doubled. It was our Navy, and the hostility of other Powers on the Continent, keeping Napoleon busy there, that had stood between us and invasion. When the war was renewed, after the temporary peace of 1801, it was the same causes that ensured our security at home; and our military strength, such as it was, had to be exerted on the Continent. Our efforts on land proved of service only in so far as they tended to weaken Napoleon against his Continental enemies, and it was by the employment of our military forces, in alliance with others, at the decisive point and time, that he was finally overthrown. Nelson's advice most distinctly was not to be anxious about invasion on a serious scale, which we need have no doubt he considered that the Navy could guarantee us against, but to put all our available strength into an offensive abroad.

Space does not permit of a detailed examination of our reasons

for taking part in the struggle against Napoleon, or of the principles which underlay our eventual success; but we venture to say that the more closely they are examined the more fully they will be accepted for guidance of our actions should we ever again have to deal with similar conditions; and the more closely will the principles we have advocated here be found to accord with those which succeeded then.

In conclusion, we wish to make it quite clear that we have not a word to say against the objects of the National Service League. We think the objects sound. We know that the purpose of the League is unselfishly patriotic, and that it includes men who have established a right to respect and admiration. But, for the reasons we have given, we do not think their proposals would fulfil their objects; and, therefore, we respectfully venture to think that the money which their adoption would cost would not be well spent.

NOTE ON THE ADMINISTRATIVE AND FINANCIAL ASPECTS OF
COLONEL KEENE'S ARTICLE.

In this note only the more important features of the administrative and financial considerations involved are touched on.

I. *Establishments.*

(a) *Cadets.*—The assumption that 50 per cent. of boys of 14 will be exempted on medical and other grounds is too generous, if the obligation to train is to be, in any sense, universal. It is calculated that, including legal exemptions, the total deductions would not exceed 33 per cent., making the annual contingent to be trained rather over 300,000 instead of 225,000, and the total to be trained about 1,000,000 instead of 850,000.

(b) *Training staff.*—The proposal appears to be to provide the greater part of the training staff from officers and N.C.O's. who have served in the Regular Army but are no longer liable for service. It is doubtful whether these would be forthcoming in the requisite numbers. It is also doubtful whether they would prove efficient instructors, as experience has shown that it is essential that the instructional staff of the Special Reserve and Territorial Force should be kept in constant touch with the Regular Army.

Provision of training staff from officers and N.C.O's. still serving with the Regular Army would be impossible on existing establishments. The present drain on Regular units to meet the comparatively small demands of the Special Reserve and Territorial Force cannot be increased without seriously affecting the efficiency of the Expeditionary Force; while at the present time officers would be required from

practically every available source to bring the Expeditionary Force up to war strength. The permanent staff of the Territorial Force now includes 2,160 N.C.O's. and men from the Regular Army. Although under Colonel Keene's scheme 1,750 N.C.O's. would be saved by reducing the regular establishment of the Special Reserve, there would still be 7,300 to be provided to complete the total number which he requires. The only way in which this number could be produced from the Regular Army, so as to give satisfactory results, would be to increase the establishment of the Regular Army proportionately.

The scheme makes no mention of Regular privates for duty with recruits. Experience shows that 41 of these is the minimum number required for a two battalion dépôt.

(c) *Comparison between the numerical strengths of the force to be provided by the National Service League's proposals and of the forces now existing.*—The scheme claims to provide a Home Defence Army of 400,000 men, but of these 80,000 are taken to replace the present Special Reserve. Thus the strength of the Home Defence Army is reduced to 320,000. The strength of the Territorial Force on the 1st May, 1912, was 275,510 all ranks, its establishment being 313,288. The increase in establishment, therefore, would amount to 7,000 only, although the increase in strength would amount to nearly 45,000 as numbers stand at the moment.

It does not appear that the officers of the Special Reserve Establishment⁷ are replaced in any shape, and if this is correct the Expeditionary Force would have to begin at once to draw away the officers of the Home Defence Army. If it is intended that the 80,000 should include officers, then the estimate must be corrected by substituting the officer's retaining fee of £20 for the man's fee of 30s.

II.—Finance.

(a) *Cadet training.*—It is very improbable that the cost of training the boys of a great city like London would be the same as that reported from New Zealand. The cost to Army Estimates of the Junior Contingent of the Officers Training Corps is about £1 12s. per head, and, as every parent knows, this does not represent by any means the total cost of training. Even if Colonel Keene's estimate of 10s. a head be accepted, the probable increase in numbers referred to in I (a) above would bring the annual cost to about £600,000 a year.

(b) *Adult recruit training.*—It is not possible to frame a definite estimate for Colonel Keene's proposals, as he does not state the proportion of the various arms or give the necessary information as to system. His figures appear to be based on the cost of an infantry private, but the cost of a sapper, for instance, exceeds that of an

⁷ The number of these on 1st May, 1912, was 2,085, exclusive of the Regular establishment.

infantryman by 25 per cent. Again it is proposed, apparently, to train the recruits under canvas in summer. To train 150,000 recruits in summer at the time when the annual training of the remainder of the force is in progress and to discharge them on to the labour market at the beginning of the winter would create such labour difficulties that a demand from the public for winter training would be inevitable. Winter training involves life in barracks, with Medical, Army Service Corps, and other departmental services for which no provision is made.

It seems highly improbable that 3,000 Territorial officers will be found willing to spend from four to six months in training recruits for the sum of £50 apiece; and in other ways the cost estimated for officers and N.C.O's appears to be insufficient.

(c) *Armament, equipment, horses and stores.*—£500,000 is taken in the estimate for armaments, horses and stores for 150,000 recruits and 400,000 men in field units. The cost of the 32,000 horses maintained for our Regular force of 180,000 is £1,040,000 a year, while £5 a fortnight is paid for horses hired for Territorial camps. Whether the horses required are to be the property of the State or are to be hired, the sum of £500,000 is inadequate to provide these alone.

(d) *Cost of field units.*—The cost of an army cannot be estimated by simple multiplication from the cost of an individual infantry private and regimental officer, with small additions for armament, stores, &c. To take a rough illustration, the cost of the 7,700 officers and 165,700 other ranks of the Regular Army calculated on this basis would be about £11,750,000; the actual cost, after deducting pensions and Army Reserve, is about £19,500,000.

Nor is it possible to apply the process of rule of three to the estimate given by Mr. Arnold Forster in 1904. The figure of £27,500,000 in that estimate included £8,500,000 for the training staff for 380,000 recruits. The proportion for 150,000 recruits would be £3,355,000, but Colonel Keene's estimate is only some £2,000,000. The training of the recruits may be limited to five months, but the permanent staff must be paid for the other seven.

II.

THE PROPOSALS OF THE NATIONAL SERVICE LEAGUE.

By LIEUT.-COLONEL G. S. FOLJAMBE, 8th Sherwood Foresters.

I HAVE read with great interest the article in the April number of THE ARMY REVIEW by Colonel A. Keene on the proposals of the National Service League; and I welcome these proposals all the more, since, so far as I am aware, it is the first time that these proposals have taken a concrete form, and a statement made as to how the numbers of men it is proposed to train should be welded into the complicated machinery of an army.

Hitherto I confess that, while I sympathize fully with the principle advocated by the League, namely, that what is the duty of all should not be left to a few patriotic individuals to do, I have had much reason to complain of the tone of speeches delivered, and letters written, by members of the League in support of their object. Although the battalion I have the privilege to command, and in which I have served for 37 years, is now above its establishment (as in fact are all the units in my county) recruiting, especially of officers, has to my knowledge been adversely affected by the statements made in the Press.

Though I admit it is difficult for the National Service League to advocate their cause without adversely criticizing the Territorial Force, it is nevertheless very hard for a man who has done his best to be told that his efforts are, and must continue to be, useless under existing conditions. Had I been a younger or less sensitive individual, I think that I should have argued that the best service I and my brother officers could render would be to resign our commissions, so that the country might realize that another system must be adopted to raise a Home Defence Army.

But I do not think that this course is one that should be adopted. For better, for worse, the voluntary system is that which is adopted by the responsible Ministers of the Crown, and it is our duty to give it our whole-hearted support. This whole-hearted support will not be forthcoming unless the individual believes in it himself. Personally

I do believe in it, and I have yet to be convinced that this voluntary system has broken down.

So far as the training of boys is concerned, I most heartily agree with the proposal that every boy capable of bearing arms should receive military training, and be under military discipline between the ages of 14 and 18. Service in the Training Corps is, I believe, in the great public schools for all practical purposes at the present time compulsory, and I fail to see why this should not be extended to all youths without distinction of rank or wealth. But, after this age, I confess I am very sceptical as to either the wisdom or the possibility of enforcing a further period of universal service by compulsion.

To begin with I think it must be recognized that the average Briton objects very strongly to compulsion. He will and does give up a great deal of his time to what he considers to be his duty *of his own accord*; he cheerfully undertakes numberless duties which make great demands upon his time and leisure; but he must do it voluntarily and of his own free will. This being the case, is it not likely that, by the time a young man has done four years' compulsory service as a boy, followed by another period in the Territorial Force, he will in most cases have had enough of soldiering, and will consider that he has done his duty and will bid the service a long farewell?

Englishmen, as a race, have been fond of sport and athletics. Possibly devotion to these has been and is being carried to excess; but I think that it would be a great national misfortune if the swing of the pendulum went too far in the opposite direction, and our young men were to be deprived of the training of eye, nerve, and endurance obtained in the hunting field, at football, and cricket to any serious extent during the few years that are available for the enjoyment of these forms of recreation to all but men of leisure. If I mistake not, the good horseman and athlete has not made a bad soldier in the past, and I fancy that the Germans, who are so constantly held up to us as a pattern and example, recognize this, and would dearly like to instil into their very scientific young officers some of the Englishmen's taste for athletics and sport. Now if the fear I expressed, viz., that few would prolong their service after the compulsory term was completed, a fear that I think from some remarks in his article was present in Colonel Keene's mind, proves well founded, how is it proposed to provide officers and N.C.O's. for the Territorial Force? I do not make out that the question of the N.C.O. has been dealt with in his article; few, very few, would be fit to be corporals at the age when the term of service expired. Without a good leavening of men of a certain age, say from 30 to 40, in a Territorial battalion, I fear much that the *esprit de corps*, which now exists so strongly, will be lost.

Then as to officers. No doubt the scheme proposed would give the force plenty of subalterns, and perhaps it is conceivable that

senior officers, *i.e.*, majors and colonels, might be provided from the Regular Army, but what about captains, men of standing in their neighbourhood, without whose aid, in country corps especially, the force would scarcely exist?

I may be wrong, but I think there would be grave fear that very few would be found willing to continue serving in a force which imposes considerable ties and restrictions on the individual, and can never really provide him with a profession.

Lastly, there are two points as regards the men, one of which constitutes a very real difficulty in all country districts. How is it proposed to train the boys and young men in the remoter villages and hamlets?

There are many very remote and inaccessible villages in this country, where the numbers to be trained,—and under the League proposals they *must* all be trained,—can be counted on the fingers of one hand. To deal with these, an enormous army of instructors would be required, and it seems to me doubtful whether much result would be obtained in comparison with the expense incurred.

The second point is whether, as the League contends, we should get a better class of recruit under its conditions than we do at present. No doubt a few of the officer class, who now shirk, and a good many of the middle class, who do not now serve in any very considerable numbers, would be swept into the net, but, when we allow for the difference between the volunteer and the pressed man, it seems to me doubtful whether they will be better than the men we have now.

Anyhow they will form only a small proportion of the total. The remainder will be of the artizan or labouring class, much the same as we have at present; and there seems to me no reason to think they would be superior in quality under the proposed *régime*. On the contrary, I fear that the reverse would be the case, since this class would contain many loafers, whose presence would cause a feeling of disgust and repugnance amongst those who are at present keen and enthusiastic. I know by hard experience the evil that even a few men of this type can do in a company, and their presence is never tolerated for a day once they are found out.

It is an ill thing to swap horses in the middle of a stream. We have at any rate the dry bones of an army, and the past three years have done a vast deal, not only to cover those dry bones with flesh, but to breathe life into the body. The whole of my experience, and it has been a fairly long one, goes to show that if you have good officers you will have good N.C.O's., and if you have good N.C.O's. you will have a good company or battalion. The men will learn as much as their commanders can teach them. The great weakness in the past has been the ignorance of the large majority of the officers of the art of imparting instruction, and of how to make the best use of the time available.

In this respect, thanks to the pains taken by brigade and divisional commanders and their staffs, who have been untiring in their efforts to assist us, there is no question but that an immense improvement has taken place in the last three years. You cannot expect to make good in three years what has been lost by the neglect of thirty, and speaking from what I see myself, we have by no means as yet attained to the highest state of efficiency that is possible under the present conditions of service.

The faults alleged against the existing system seem to fall under three heads :—

- (1) Deficiency in material, both in the way of appliances for training, and of equipment and stores for mobilization.
- (2) Inadequacy of numbers.
- (3) Lack of discipline and training.

As regards (1), we can eliminate it, as it is purely a matter of money and will be equally felt under any system that may be adopted.

As to (2), judging from my own experience, mentioned above, I do not see the difficulty of raising many more men than we have at present ; and

(3) In my opinion the League proposals go either too far, or not far enough. The voluntary system will be destroyed, and with it the keenness and enthusiasm which now stimulates every man to do his best. I do not think myself that these proposals will be sufficient to give us anything like the efficiency in personnel that we have at present, and I believe that nothing short of two years' solid training for all, in other words, "conscription," will suffice for the security of the country if the present system is abandoned.

Our critics are very fond of enlarging on the very few hours devoted to training during the year, but I think they little know the amount of instruction, practical and theoretical, that is given to officers and men in the drill halls and miniature ranges during the winter. Little, if any, of this appears in Returns, or meets the eye of the general public.

I confess my knowledge is limited in extent ; I write only of what comes before my notice, and from observation of units with which we come in contact ; but what can be done in one locality or one unit as regards numbers and efficiency can be done in others.

After all, the question as to whether the Territorial Force can, or cannot, be made sufficiently efficient to carry out the task allotted to it must rest with the brigade and divisional commanders.

They are experienced professional officers and it is for them to say whether the troops they command are, or can be made, fit for service, or whether on the other hand the attempt is hopeless, and on their unbiassed opinion I am quite content that the Territorial Force and the voluntary system should stand or fall.

III.

WIRELESS TELEGRAPHY FOR ARMY PURPOSES.

By RAYMOND D. BANGAY.

FOR military purposes wireless telegraphy has four advantages over the older method of communication by wire, which makes its value in time of war almost incalculable. They are :—

- (1) Communication cannot be cut by the enemy, and there is no wire to be inadvertently broken by friendly troops.
- (2) In case of a movement to a flank the communicating stations can be quickly moved without any wire having to be taken up and relaid.
- (3) Communication can be established between two points without the necessity of having to traverse the country between the two points.
- (4) Communication can be established with a ship at sea.

Although the use of these installations would increase the efficiency of an army, it does not follow that they would entirely supersede the field telegraph and telephone. For instance, where a complicated system of communication is required over short distances and where it is a simple and easy matter to run any number of insulated wires, this method would probably be adopted. It is a mistake to try and compare a wireless installation with a field telegraph installation for the purpose of proving that one or the other system is the better to adopt. The two systems are radically different in their operation, and they must each be studied independently with a view of utilising the best system for the particular purpose in hand, and also in order to get the best results from a combination of the two systems.

So that the subject may be better understood by those who have only a superficial knowledge of Wireless Telegraphy, it is perhaps as well to describe in a simple way what a " wireless " station consists of and the nature of its action. Generally speaking it can be divided into three parts :—

- (a) The aerial wires or antennæ.
- (b) The generator and transmitter.
- (c) The receiver.

The function of the aerial system is, firstly, to radiate energy in

the shape of ether vibrations; and, secondly, to pick up similar vibrations which have been radiated from some other station.

This is a very broad way of looking at it, and it is worth while looking a little more closely into what actually takes place when the antenna is performing these functions.

The antenna does not, as is popularly believed, radiate either electricity or sparks when a message is being transmitted; and the popular idea that the antenna picks up electricity from the air when a message is being received is just as incorrect. Its real function when a message is being transmitted is to make use of electrical energy put into it by starting the ether into motion, or in other words, to convert the electrical energy with which it is charged into ether waves which are propagated through the ether in all directions with a velocity equal to that of light; and when a message is being received to make use of the energy stored up in the moving ether by starting the electricity in the antenna into motion, or to convert the ether waves into electrical energy.

A similar cycle of events can be watched by making the following simple experiment:—

In a pool of water, and at opposite sides of it float two pieces of wood. These two pieces of wood represent the antennæ of two wireless stations, and the water between them represents the ether.

Now if you strike one of the pieces of wood with a hammer or in any other way cause it to disturb the water, it will be noticed that a number of ripples or waves are sent out in all directions. Follow these waves until they reach the piece of wood at the far side of the pool, and it will be noticed that this piece of wood is set in motion by these waves.

Analyse this, and the following will be observed:—

- (1) The "transmitting" log of wood does not move from its relative position to the "receiving" log of wood.
- (2) It does not send out nor radiate any particles of itself.
- (3) The actual particles of water do not travel from one end of the pool to the other. The wave travels, but if any particle of water were to be closely watched, it would be found that it only moved up and down in a vertical direction.
- (4) The "receiving" piece of wood does not absorb any of the water, but merely converts the wave motions of the water into a mechanical movement of itself, and this movement could be translated again into a visible record by some simple attachment in connection with a pencil.

We have here a very good analogy of two wireless stations: the hammer corresponds to the transmitter, the pieces of wood correspond to the antennæ, the water to the ether, and the pencil attachment corresponds to the receiver.

To go into every detail of the working of a wireless station would

fill up several volumes, so I intend to devote this article to a study of only those factors which from a military point of view are probably the most important, and to show how these points are actually carried out in practice by describing the various types of installations manufactured for the purpose.

The points above referred to are—range, mobility, selectiveness, and secrecy. Of these points I shall take range and mobility together, as the one is more or less directly affected by the other.

RANGE AND MOBILITY.

The range of a wireless station is chiefly governed by the average height of the antenna above the ground and by the power of the transmitter. Roughly speaking the range varies directly as the height of the antenna and as the cube root of the power. In other words if it is required to double the range of a station which is using a 2 horse-power engine and the average height of whose antenna is 25 feet, it can either be done by increasing the height of the antenna to 50 feet and keeping the power the same, or by increasing the power to 8 horse-power and leaving the height of the antenna as it was originally.

At first sight, therefore, it would appear to be more profitable to use high masts in order to get a big range; and this would certainly be the case if the question of mobility and time taken to get the station into action were of no importance. In practice it is found that a mast 50 feet high takes nearly three times as long to erect as a mast 25 feet high, whereas an 8 horse-power engine will start up just as quickly as a 2 horse-power engine; also the weight of a 50-foot mast is about four times the weight of a 25-foot mast, whereas the weight of an 8 horse-power engine will only be about three times as much as that of a 2 horse-power engine.

Thus, where the time taken in getting the station into action is of extreme importance, it will be found to be more advantageous to keep the power of the station high and the height of the masts low.

The mobility of the station, however, is effected rather differently, because although the total weight of the station must be kept low on account of the different methods of transport by which it may have to be carried, it is also necessary to be able to divide up the total weight into small enough units. For instance, although the regulation load for a horse is 160 lbs., a piece of apparatus weighing 160 lbs. would be extremely difficult to carry on horseback unless it could be divided into two loads of 80 lbs. each, which could be carried one on either side of the saddle.

Now, a mast even 70 or 100 feet high can be divided up into small sections, and could thus be adapted to almost any kind of transport; whereas it is quite out of the question to divide up the engine or the dynamo every time the station is to be moved.

For this reason, therefore, where extreme mobility is the most important point, the power should be kept sufficiently low so that any single unit does not weigh more than 60 or 80 lbs., and the height of the mast would have to be increased according to the maximum range that might be required.

A factor that I have not mentioned, which directly affects the range of a station, is the sensitiveness of the receiver, but fortunately the modern receiver—an instrument which is susceptible to the minutest of electrical disturbances, and can be adjusted to discriminate between different electrical disturbances of very slightly different characteristics—is extremely robust from a mechanical point of view, and will stand any amount of knocking about and rough handling. We are therefore able to use, with practically all types of military stations, the most sensitive receiver obtainable.

SELECTIVENESS.

One important difference between wire telegraphy and wireless telegraphy is that with the former the influence of the transmitter is limited to the wire along which the messages pass, whereas with the latter, messages are radiated in all directions and its influence is only limited by the range of the station.

Therefore, unless we had some means of selection between different transmitters, it would be quite impossible for more than one pair of stations to work together at the same time if they were within each other's sphere of influence.

There are two methods by which selection can be made between different transmitters. One is by the difference in the sound produced in the receiver, which I shall call "Selection by sound," and the other is by the difference in wave-length, which I shall call "Selection by wave-length."

Selection by Sound.

I should explain that in all modern wireless-telegraph receivers, the final detector by which the telegraphist is made conscious of the minute electrical disturbance produced in his receiver is the telephone ear-piece.

It must be clearly understood, however, that the tone of the sound produced in the telephone bears no relation whatever to the wave-length.

The word "tune" is often used by wireless telegraph engineers to denote wave-length, but this is only for want of a different word. Thus, an engineer would speak of "tuning" his apparatus, meaning by that the process of adjusting it to a certain electrical wave-length; and he would speak of sending a message on a certain "tune" meaning a certain electrical wave-length. In neither case would the word "tune" have its everyday connection with sound or notes.

The number of electrical alternations per second required to produce a wave-length of, say, 10,000 feet (which is a long wave-length for a wireless station to radiate), is about 100,000, whereas the highest note which is audible to the human ear has only 10,000 vibrations per second.

The telephone ear-piece is an instrument which converts electrical currents into an audible sound, so that when connected to the receiver it converts the electrical currents, produced in the receiver by the ether waves, into audible sound.

Now, since the ether waves which produce the electrical currents in the receiver are emitted by the transmitter of another station, it follows that the audible sounds which the telegraphist hears in the telephone are controlled by the other station.

As a matter of fact, the currents produced in the receiver by the waves are high-frequency alternating currents, and these are rectified by a certain part of the receiver into continuous or direct currents before they get to the telephones.

Now, the result of passing a direct current through a telephone is only a single click of the diaphragm, no matter for how long the current is allowed to flow through the telephone. If the transmitter therefore were to send out an unbroken stream of waves the result produced in the telephone would be only a single click, and there would therefore be no means of distinguishing between a stream of waves of long duration and a stream of waves of short duration, or, in other words, there would be no way of reading the longs and shorts or the dots and dashes of the Morse code which the transmitter would be sending out.

It is so arranged in the transmitter, however, that the stream of waves is broken up into groups of waves, each group producing a separate click in the telephone. Now, the number of groups per second into which the stream of waves is broken up can be regulated quite independently of the actual length of the wave, and the result in the telephone of the receiver will be a series of clicks corresponding in number to the groups of waves transmitted. If, therefore, these groups of waves follow each other rapidly enough, we shall get in the telephone a sound which has a musical note, and as the number of groups per second are increased or decreased, so is the note produced in the telephone made higher or lower.

By thus arranging that the transmitters of different stations send out a greater or less number of groups of waves per second, several pairs of stations would be able to work at the same time and within range of one another without interfering with each other, for the telegraphist would be able to keep his attention fixed on any one particular note.

The disadvantage of using this method of selection only, however, is that if the signals from the particular station from which it is desired

to receive were much weaker than those from another station working at the same time, the weak signals would be more or less drowned by the strong ones.

Also, in order that the telegraphist could keep his attention to a particular note while another note is going on without strain to his ears, it is necessary to have a considerable difference between the notes.

The number of stations that could work at the same time within range of one another would, therefore, be very limited without some other method of selection.

It is advisable to mention here that this method of "selection by sound" is never spoken about as "tuning," nor is the sound heard in the telephone spoken of as a "tune." It is referred to as the "note" of the transmitting station.

Selection by Wave-Length.

The distance from the crest of one wave to the crest of the next wave is called the "Wave-length."

The speed of radiation through the ether is about 1,000,000,000 feet per second. From this it can easily be seen that if the electrical oscillations in the antenna that produce the wave are at the rate of 1,000,000,000 times per second, the length of the wave would be 1 foot. Or if the oscillations take place at the rate of 1,000,000 times per second, the length of wave would be 1,000 feet, and so on.

The wave-lengths commonly used in wireless telegraphy vary from about 300 feet to about 30,000 feet, the only limits imposed being those laid down by international conventions, and those which arise from practical considerations.

There are certain factors which make it difficult to radiate a big power in a short wave-length, so that it will usually be found that the more powerful the station the longer the wave-length used. Also, a long wave-length is less liable than a short wave to absorption by mountains, forests, or any other obstacles which might be in the line of communication. Thus it will usually be found that stations communicating over land use a longer wave-length than stations communicating over sea.

For the purpose of this article it is not necessary to explain what actually governs the wave-length of the transmitter. Suffice it to say that this can be controlled in the design of certain parts of the syntonizing circuits of the apparatus, and if these parts are so designed that they are adjustable, then the wave-length transmitted can be adjusted to any desired value within the limits of the apparatus. The same thing applies equally to the receiver, the wave-length which it can receive being adjustable to any desired value within the limits of the apparatus.

I have up to the present dealt with the transmitter and the receiver as entirely different subjects, so that many readers will probably have

received the impression that the two are entirely different kinds of things. This impression would be still further strengthened if the reader were shown a receiver and a transmitter side by side. As a matter of fact, however, from an electrical point of view the syntonizing circuits in both these instruments are identical, the only difference being in point of size, the transmitter, of course, being designed to carry a great deal more current than the receiver. The real difference between the transmitter and the receiver is that in the case of the transmitter some sort of generator is applied to the syntonizing circuit, and in the case of the receiver some sort of detector is applied to this circuit.

Perhaps the simplest way to explain the syntonization between the transmitter and the receiver of a wireless telegraph station is by the analogy of sound and by describing a few simple experiments which can be made with sound-waves, as the electrical-waves follow very much the same laws as sound-waves. The chief difference between the two being that sound-waves are vibrations of the air, and electrical-waves are vibrations of the ether.

In the following experiments a tuning-fork will represent the oscillating or syntonized circuit of either the transmitter or the receiver. The human ear will represent the detector, a hammer will represent the generating unit, and the air will represent the ether as the medium through which the vibrations are radiated.

For the sake of convenience the tuning-fork, which is struck by a hammer in the following experiment, will be referred to as the transmitting tuning-fork, and the tuning-fork which is caused to respond to the first tuning-fork will be called the receiving tuning-fork.

The unfortunate thing about this tuning-fork analogy is that it is likely to drag in the old error which associates the word "tune" as used in wireless telegraphy with the familiar ideas of sound and music, an error against which the reader has already been warned.

The analogy, however, is so useful and expressive, that I have adhered to it, merely calling attention to the necessary discrimination.

Experiment 1.—Take two tuning-forks of exactly the same pitch and support them a short distance apart; strike the transmitting tuning-fork with a light wooden hammer. It will be found that the receiving tuning-fork will respond, the strength of its response varying according to the distance between it and the transmitting tuning-fork.

Experiment 2.—Replace the receiving tuning-fork by one of a different pitch, and it will be found on striking the transmitting tuning-fork that this receiving tuning-fork will not respond at all unless brought very close to the transmitting tuning-fork.

In the same way in a wireless telegraph station if the syntonized circuit of the receiver is not in tune with that of the transmitter of another station, the receiver will not respond to it unless the two stations are very close together.

Experiment 3.—It will be noticed that when the tuning-fork is struck once by the hammer it continues to vibrate for a very considerable period of time, perhaps even for as much as a minute. This indicates that there is very little damping or friction in the tuning-fork. Now, if friction be artificially introduced into it—for instance, by slipping a rubber band over it—it will be found that the tuning-fork after being struck once will not continue to vibrate for so long a time, and that, although the pitch of the note is not altered in any way, the quality of the note is very much duller.

Now repeat Experiments 1 and 2 with the “damped” tuning-fork as the transmitter, and it will be found that not only does the receiving tuning-fork which is actually in tune with the transmitting tuning-fork respond to it at a given distance, but also that tuning-forks of a considerably different pitch will also respond. The extent to which the pitch of the receiving tuning-fork can be varied without interference with its responding will depend upon the extent to which the transmitting tuning-fork is damped.

Experiment 4.—If this damping of the transmitting fork is carried to an extreme, the sound produced when striking it with a hammer loses all the characteristics of a note and becomes simply a noise, and it will be then found that any tuning-fork, no matter to what pitch it is tuned, will respond to the noise.

In the same way it will be found in working wireless telegraph stations that if the transmitter is very much damped, the receiving station can be considerably out of tune with the transmitting station and still be able to receive signals from that station; and if this damping is carried to an extreme practically all receivers, no matter to what wave they are tuned, will respond to them.

It is, of course, impossible to design an electrical circuit without any resistance at all, so that in all wireless telegraph transmitters there is a certain amount of damping, and for this reason it is usual to allow a difference of from 10 to 20 per cent. in the wave-length transmitted by different transmitters when they are required to work at the same time within range of one another in order to avoid any chance of interference.

“ATMOSPHERICS.”

“Atmospherics” is the word applied to electrical disturbances in the atmosphere. They produce, in the telephone ear-piece of the receiver, a noise which is liable to interfere with the reception of messages.

Not very much is yet known about their origin, but their effect has been carefully studied, as, especially in the early days of wireless telegraphy, a great deal of trouble was caused by them, and in many cases they completely drowned the signals of the wireless station with which it was intended to communicate.

There are many different kinds of atmospherics, which produce quite distinct noises in the receiver. They are quite independent of thunderstorms and very often they are worst when the sky is perfectly clear.

The chief difficulty in getting rid of them is that they are very much damped, so much so in fact, that they can be compared to the phenomena in sound waves already explained in Experiment 4. The result is that no amount of syntonizing will get rid of them to any appreciable extent, and they have to be dealt with in an entirely different way.

The strength of the atmospherics in the receiver is more or less proportionate to the height of the mast and the size of the antenna, and as the field stations which are described later are supplied with only low masts and comparatively small antenna, they are practically never troubled with atmospherics, although these troubles are sometimes encountered with field stations of other manufacture than those described, simply on account of the size of the antenna which they employ.

In powerful stations, however, such as those used for communicating across the Atlantic, where the antenna is not only very high, but also covers a large area, before a satisfactory method of dealing with the trouble was devised, atmospherics were frequently strong enough to suspend communication entirely for several hours at a time, sometimes even for several days.

A system, however, has been devised and patented by Marconi's Wireless Telegraph Company, Limited, whereby two receivers are connected in opposition to each other. One of the receivers is carefully tuned to the wave length which it is desired to receive, and the other is adjusted to a slightly different wave-length.

Now both of these receivers respond equally to the atmospherics, and being connected in opposition the atmospherics are thereby neutralized. The signals, however, are only received in the receiver which is syntonized to the correct wave-length and are therefore not neutralized.

The apparatus for this is somewhat complicated, and, as already stated, is not necessary for stations using small antennæ and low masts.

SECRECY.

Secrecy, of course, is a point which requires careful consideration in the design of a military field station.

Some years ago the officials responsible for the organization of the wireless telegraph service of a certain army came to the conclusion that the best means of obtaining secrecy was by stipulating a high degree of sharpness of "tuning." They therefore specified that the sharpness of "tuning" of the stations manufactured for them was to be 5 per cent.—that is to say, a change of wave-length of 5 per cent.

in the "tuning" of the receiver must render readable signals inaudible, after which a corresponding change of 5 per cent. in the "tuning" of the transmitter must render the signals readable again.

The designers of the apparatus, therefore, developed very highly-"tuned" transmitters to meet these requirements, but in the practical tests of these stations it was found that practically no advantage in the way of secrecy was offered on account of the facility with which the receiver could be "tuned" to any wave-length. It might, perhaps, take as much as 10 seconds to tune-up the receiver to the right wave-length, but that would not prevent the enemy's station from reading the greater part of the messages that were transmitted if they so desired.

Another result of these tests was that although, in accordance with their expectations, their receivers were not affected by their own transmitters when their wave-length differed by more than 5 per cent., they also found that other stations of a different type, which were using a much less sharply "tuned" transmitter, seriously interfered with their working, because no matter how sharply tuned the receiver may be, it will still respond to a wave-length that is of considerably different pitch if that wave is much damped. This point was demonstrated in the experiments described with the tuning-forks.

It was also found that, although the interfering station had flatly-tuned transmitters, they had extremely sharply-tuned receivers, and were therefore able to cut out all interference on the part of the stations which were using the sharply-tuned transmitters.

The net result was that the stations using flatly-tuned transmitters and sharply-tuned receivers maintained good communication between themselves, while the stations using sharply-tuned transmitters were unable to communicate on account of interference from the first-named stations.

It is obviously only a matter of organization to allow many stations using fairly flatly-tuned transmitters to work at the same time and within range of each other by allowing a margin of, say, 20 per cent. between their different wave-lengths, so that we can come to the conclusion that flatly-tuned transmitters lose nothing in the way of secrecy or selectivity over the sharply-tuned transmitters, and have the advantages of interfering with the communication of the enemy's stations.

Perhaps the surest method of obtaining secrecy has been adopted by Marconi's Wireless Telegraph Company in the design of some of their field-stations.

This method is to change the wave-length of the transmitter at frequent intervals from one fixed wave-length to another. In the ordinary way the time taken to change the wave-length of a transmitter is a matter of some minutes, and to change the wave-length of the

receiver a matter of some seconds. But in the stations above referred to the different components of the syntonized circuits of both the transmitter and the receiver are brought to a three-position switch, called the "change-tune" switch, one such switch being fitted to the transmitter and one to the receiver. Each position of the switch changes the wave-length to a definite value, and the switch being operated by a single handle, the time taken to change the wave-length of either the transmitter or the receiver is thus reduced to a fraction of a second.

The operator can therefore change his wave-length or "tune" after every three or four words to any of the three waves to which his switch has been adjusted without waste of time and by sending a code letter, indicating to which "tune" he was about to change before each change. The operator at the station with which he is communicating, and whose receiver is similarly fitted with a switch, would be able to follow him without difficulty; whereas any other station would only be able to read at the most a few disjointed words here and there, which would be of little or no value in the hands of an enemy.

Of course, if such a station were always to work on the same three waves the enemy's stations would soon measure the waves and devise a method of "standing-by" on all three waves; but the apparatus is so arranged that the value of each wave corresponding to the different positions of the change-tune switch can be varied to anything between wide limits, so that each day, or even several times a day, the values of the three wave-lengths can be themselves changed.

If the wireless service of an army were properly organised with such stations as these, it would be a practical impossibility for any station, not informed, to read the messages transmitted.

For example, take two stations A and B thus fitted. It would be a simple matter to arrange a programme similar to the following, and practically impossible for a station not informed of the details of the programme to read any message sent :—

	Station A.			Station B.		
	Waves corresponding to 3 positions of "change-tune" switch of transmitter.			Waves corresponding to 3 positions of "change-tune" switch of receiver.		
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
1st day ...	500	900	1200	650	850	1050
2nd „ ...	1000	1200	1400	800	900	1100
3rd „ ...	600	700	1400	700	1000	1100
4th „ ...	650	750	950	550	800	1300

DESCRIPTION OF STATIONS.

Having grasped some of the general principles which are involved in wireless telegraphic communication, we are now in a better position to appreciate a description of the different types of stations used by most of the important armies of the world.

It is not the object of this article to compare the merits or demerits of stations manufactured by different companies, so I will limit myself to a description of the stations manufactured by The Marconi's Wireless Telegraph Company, who have made a special study for a number of years of stations for military use, and whose stations are used by nearly all the armies of the world.

LONG RANGE STATIONS.

The largest portable station for which they have found any great demand for military use has a range of about 200 miles. It is designed for wheel transport only, and since for this kind of transport it is unnecessary to divide the loads into very small units, it has been possible in this type of station, besides using a more powerful transmitter, to include a number of more or less elaborate devices for increasing the value and convenience of the stations, which devices have had to be sacrificed where other methods of transport have been allowed for.

The time required to erect or dismantle the stations is about 20 minutes with eight men, but it is possible for three men to erect and work the station, although, of course, more time would then be taken for erecting.

The total weight of the station without carts or personnel is about 17 cwts., and when mounted in carts complete with supplies for three or four weeks' continuous working and with the personnel the weight, including everything, is about 60 cwts.

For transport it is normally divided into either :—

- (a) Two horse-drawn units.
- (b) One self-propelled unit.

(a) *Horse-drawn vehicles*.—In this case the limbered wagon type of vehicle has been adopted as being the most suitable. The first limber carries the generating plant and the wagon carries the transmitting and receiving apparatus. The second limber carries a supply of petrol, spare parts, &c., and the wagon carries the masts with all their gear, and also the aerial and earth wires.

Of course, if so desired it could be arranged to be carried in two wagons, one wagon carrying the generating, transmitting, and receiving apparatus, and the other wagon carrying the masts, supplies, &c.

GENERATING CART (LIMBER).

The prime mover of the station consists of a two-cylinder petrol engine having an output of about 8 horse-power. It runs at a speed of 2,000 revolutions per minute, and is air-cooled by a special blower

mounted on the flywheel, which keeps a continual blast of air circulating round the cylinders. This is sufficient to prevent any possible chance of overheating, and has the great advantage over water-cooling in that the stations can be taken up mountains or left in cold climates without risk of the water freezing and cracking the cylinder jackets.

The engine is direct coupled on an aluminium bedplate to a self-exciting alternator, having an output of about 2 kilowatts; and mounted on the shaft of this alternator, at the end remote from the engine, is the disc discharger, the function of this latter being to break up the train of waves into groups of waves so as to give the sound produced in the receivers a musical note.

The disc discharger has 12 studs mounted on its periphery, which, when revolving at the speed of 2,000 revolutions per minute, produces a note with a frequency of 400 vibrations per second.

All the necessary spare parts, tools, &c., required for the engine and dynamo are also carried in this cart.

INSTRUMENT CART (WAGON).

The current from the generator is carried by a flexible cable to the instrument cart, where it passes through the manipulating key to the transformer. Here it is transformed to a high voltage current, which charges the battery of condensers in the primary high-frequency circuit.

These condensers discharge themselves through the disc discharger (already mentioned) and through the primary of the high-frequency transformer, the secondary of this high-frequency transformer being connected to the aerial on one side and to the earth on the other side.

Both the primary and the secondary circuits of this high-frequency transformer are connected through suitable inductances for changing the wave-length, and through the change-tune-switch, by means of which the operator is able to change his wave-length at will.

The receiving apparatus is also carried in this cart, and consists of two separate receivers, one receiver being specially adapted for the change-tune-switch, and the other receiver being of a more simple type and arranged for tuning up quickly to any wave-length between 500 and 1,400 metres. A small switch is provided by which the operator can change the telephones which are attached to his head instantaneously to either one receiver or the other, so that should anything go wrong with any part of one receiver he can instantly change to the other without delay.

The receiver fitted with the change-tune-switch is generally used when communicating with a second station of the same type, and the adjustable or flexible receiver is used for communicating with any other stations desired. A tuning tester is also provided for testing the wave-length of both the transmitter and the receiver.

The apparatus is so arranged that the telegraphist has practically no adjustments to make at all while working the station, all adjustments being made beforehand by the officer in charge.

The engine and instrument carts are fitted with an electric light system run off an accumulator battery, which is charged automatically from the dynamo whenever the dynamo is run for the purpose of transmitting messages.

For working the apparatus the bottom half of the back of the instrument cart opens downwards and forms a writing table for the telegraphists. The upper half opens upwards and forms a slight shelter, to which are attached canvas screens which can be drawn up to form a tent in which, if necessary, the telegraphists can sleep. A similar shelter is also provided with the engine cart.

SUPPLY CART (LIMBER).

The supply wagon carries two large tanks for fuel and a small tank for lubricating oil.

The fuel carried in these tanks is sufficient for about two to four weeks' working.

MAST CART (WAGON).

The masts, antennæ, and earth attachment are carried on a specially constructed body. The sections of the mast are clamped in position along the perch, and the three cases—one of which contains the antenna and earth wires, and the other two each the gear and pickets for one mast—are placed above and on either side of the mast sections, and are held in position by suitable straps.

The antenna consists of two woven wires about 500 feet long, which are supported by two masts 70 feet high.

The earth connection consists of four strips of phosphor bronze wire netting about 3 feet wide and 30 feet long, which are simply laid on the surface of the ground.

The masts are of the wooden sectional type, divided into six identical sections. Each section is hollow and built up of a number of strips of wood glued and bound together, leaving a hollow space of about $2\frac{1}{2}$ inches diameter down the centre. At one end of the section a steel tube projects for about 9 inches, and at the other end is fitted a steel tubular socket, which enters the section for about 9 inches. The sections can thus be joined together to form the mast by plugging one into another.

The stays are made of flexible bronze wire cable, and are attached to one end of the mast by means of stay plates, which are put into positions when building up the mast.

The other ends of the stays are attached to the anchor pegs by means of rope adjusters, which allow of tightening or slacking the stays.

The pegs (four for each mast) are driven into the ground at points indicated by an instrument called a "peg-marker." It consists of a centre pin with four short arms at right angles to one another. Attached to the pin is a cord, the length of which gives the distance from the foot of the mast to the anchor pegs. The centre pin is driven into the ground at the point where the mast is to be erected, and the cord is then drawn out to its full extent and carried in a circular direction round the centre pin. A peg is then driven into the ground at each of the four points indicated by the end of the cord as it comes in line with each of the four arms of the peg marker.

The mast is erected by means of a derrick, the derrick being built up of two mast sections.

One of the photographs shows one of these 70-ft. masts in the course of erection.

The mast can, if necessary, be erected by three men.

INTERMEDIATE RANGE STATIONS.

These stations have been designed in such a way that they can be readily adapted to practically any kind of transport, either in light carts, on mule or horseback, by hand or by litters.

The stations can be erected or dismantled in a shorter time than that taken by the larger station.

All this, however, has necessarily been accomplished at the expense of range, but since such types of stations would be used mostly for scouting purposes, for intercommunication between different parts of an Army Corps, for landing parties sent inland from battleships, or for keeping any detached unit in touch with its base, so large a range as that obtained by the more powerful stations would, in most cases, be quite unnecessary and would tend to complicate the general system of communication of the whole army by the chance of "jamming" other stations.

The range of this station is about 50 miles over average flat country. The station can be erected in from six to ten minutes by half-a-dozen men, although, should necessity arise, it can be erected and worked by only two men.

GENERATING SET.

The prime mover consists of a twin-cylinder petrol engine with an output of $2\frac{1}{2}$ horse-power, running at a speed of about 2,000 revolutions per minute, and is air-cooled by a fan which is mounted on the flywheel. The engine is extremely reliable and only weighs about 40 lbs. I have myself seen these engines running week after week without a hitch, although fully exposed to heavy rains and dusty roads.

GENERATOR.

The generator is direct-coupled through a flexible driving shaft to the engine, and consists of a self-exciting low-frequency alternator

entirely enclosed and weatherproof, with an output of about $\frac{1}{2}$ kilowatt. It is arranged to give a supply of alternating current for feeding the transmitter, and a small supply of low-voltage direct current for charging the small accumulators used for the electric light, &c., in the receiver box. Leads with non-interchangeable plugs are used for connecting the dynamo to the transmitter and receiver in such a way that it is quite impossible for any mistake to be made.

INSTRUMENTS.

The instruments are divided into three units only, the transformer forming one unit, the primary oscillating or syntonized circuit forming the second unit, and the receiver with all its accessories and a tuning tester forming the third unit.

Each of these units is self-contained, and all connections between them are made automatically when the three cases are placed one on top of the other ready for operation. The bottom case is the transformer box, the middle case is the primary box, and the top case is the receiver box. During operation the only box which is open is the top box, the lid of which when open forms a writing table for the operator. No covering of any kind is necessary to protect the apparatus, although for the comfort of the telegraphist a small tent can be erected in heavy weather. The transmitter is fitted with a three-position switch for changing the wave-length.

The receiver is of a considerably simpler type than that fitted with a change-tune-switch supplied with the cart stations; it is, in fact, identical with the second receiver in the cart stations, which is specially arranged so that it can be rapidly syntonized to any desired wave-length.

MASTS AND ANTENNÆ.

The masts, antennæ, and "earth" of this station are very similar to those of the more powerful stations already described, but on a rather smaller scale, the masts being only 30 feet high, and supporting an aerial about 350 feet long.

These masts are of the same construction as the 70-foot masts, only of a lighter build, and being only 30 feet high it is unnecessary to use a derrick for erecting them, it being merely necessary to walk them up in much the same way as a ladder is walked up.

CAVALRY STATIONS.

When arranged for pack transport the engine and dynamo are mounted on either side of a rigid pack-saddle frame, which frame is adjustable to suit different sized animals. The saddle frame acts as a bedplate for the generating set, and to put it into operation it is only necessary to unbuckle the girths, breeching, and neck straps to remove the whole saddle from the back of the horse on to the ground, to couple the engine to the dynamo by means of a telescopic driving

shaft, and to start the engine, the whole operation taking, perhaps, one minute or less.

This type of saddle is used to carry all the other loads, and has been adopted on account of its great adaptability for carrying awkwardly-shaped loads, such as masts, engines, &c., and on account of the fact that a sore back is practically an unknown factor in connection with it.

The station is carried in four loads, the engine and dynamo forming the first load, the instruments the second load, the masts and "earths" the third load, and the mast gear and antennæ the fourth load. No load is over 200 lbs. in weight, inclusive of saddle, and the whole station is capable of being moved at the gallop.

LANDING STATION.

When arranged for landing stations the apparatus is normally carried on very light hand-drawn or horse-drawn vehicles. The engine and dynamo, instead of being mounted on a saddle frame, are mounted on a light wooden bed, which forms part of the framework of the cart; but loops are provided to all parts of the apparatus, so that at a moment's notice they can be carried by hand, each load of 75 lbs. having a mast section passed through these loops and carried between two men.

Of course, when special requirements make it desirable that the stations should have a longer range than 50 miles, the same apparatus can be used in conjunction with 70-foot masts, and the range of these stations is thereby increased by about 100 miles.

SHORT RANGE STATIONS.

To meet the demand for an extremely light station intended for use by scouts, and to replace to a large extent visual signalling and mounted orderlies, and for all kinds of purposes, including the directing of gun fire, a station has been designed in which everything has been done to secure extreme portability and simplicity of manipulation.

The station is called the "knapsack" station and has a range of about 10 miles, and is carried in knapsacks strapped to the backs of soldiers. Four men, each carrying a load of between 20 or 30 lbs., are necessary to carry a complete station.

No elaborate system of syntonization is provided, this being unnecessary owing to the short wave employed, which is so widely different to that in ordinary use as to make these stations practically immune from interference.

A single mast of extremely light though rigid construction, made chiefly of aluminium tube, is used to support an umbrella form of antenna, the antenna acting also as stays to the mast.

The source of energy may be either a primary or a secondary battery, according to choice. If the latter be employed it is necessary,

of course, that the accumulators should be systematically charged as required, and for this purpose a special field charging set, which has a sufficient output to serve 10 or 20 such stations, is made.

MILITARY USE OF WIRELESS.

It is difficult to foretell to what extent wireless telegraphy will be developed for army purposes. The stations as they stand are already well on the road to perfection, but as new conditions arise and as new developments in other branches of the Army take place, so has the application of wireless telegraphy to develop to meet these new conditions.

For instance, it will have been noticed in the Press recently by most of the readers of this article that successful experiments have recently been made by The Marconi's Wireless Telegraph Company in connection with wireless installations on aeroplanes. These experiments have only recently been started by them, but have already led to results from which it can safely be said that before very long they will have placed on the market a station capable of communicating from and to an aeroplane over a distance of anything from 30 to 50 miles. Such an installation would increase to a great extent the value of the aeroplane in time of war.

As things are at present I venture to suggest that the actual developments of wireless telegraphy and of suitable apparatus for military purposes is far ahead of any organization in the Army for the use of these stations.

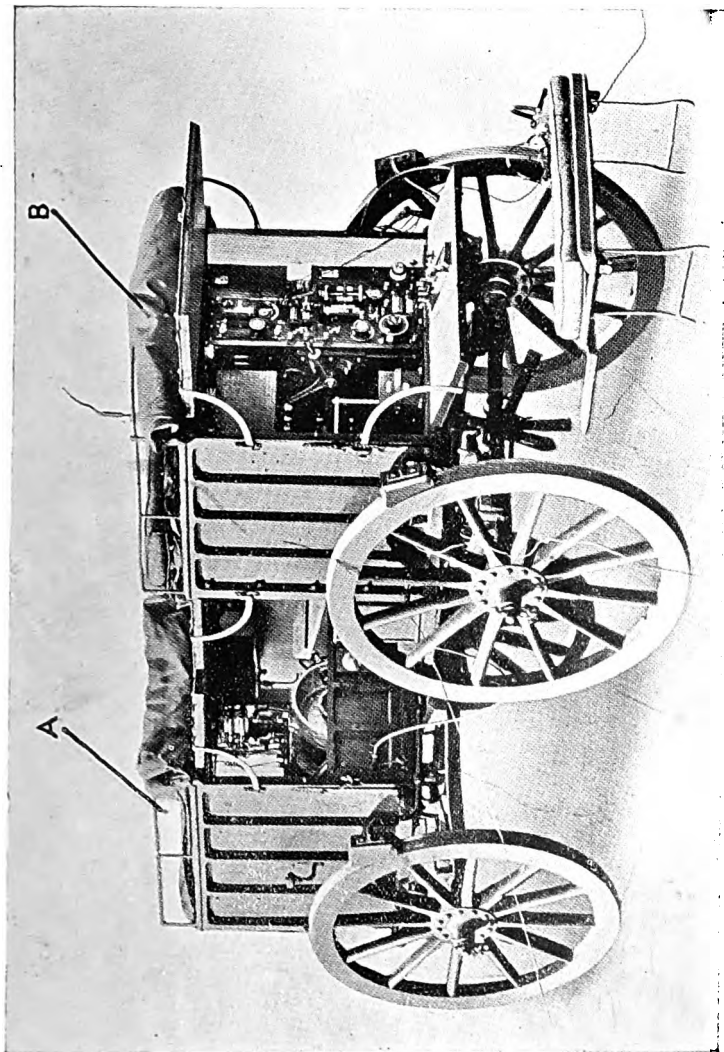
To work a large number of wireless stations together requires careful organization, and unless such organization is fully developed during times of peace, when every detail can be tried out in practice, an army will find itself at a very serious disadvantage if it has to develop its system during a war.

Moreover, it is most advisable that the telegraphists operating the stations should have, if possible, three years' experience behind them, as a man with such experience is more than twice the value of a man whose only knowledge is the manipulation of the key, no matter how perfect that knowledge might be.

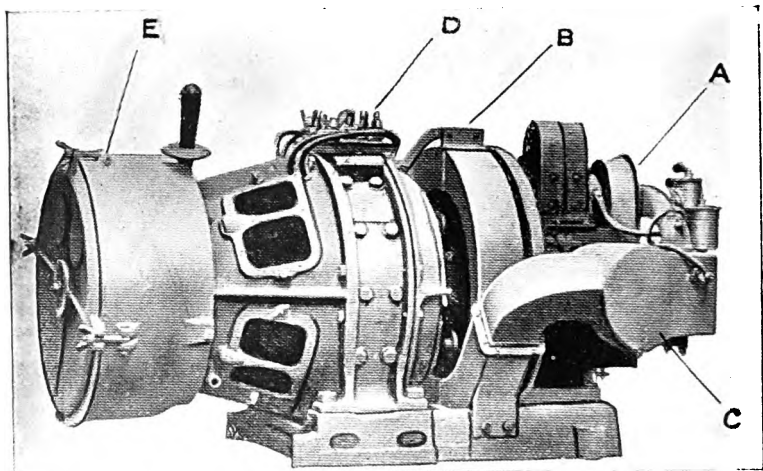
It is also equally important that the generals and officers in command of the forces should be thoroughly familiar not only with the possibilities of the use of wireless telegraph stations, but also of the limitations of any particular type of station.

This knowledge can only be obtained by having a complete organization of such equipments in constant use.

There is no doubt that co-operation between the military authorities and the experts and designers of the manufacturers of the apparatus would rapidly perfect wireless telegraph stations specially adapted for military purposes.

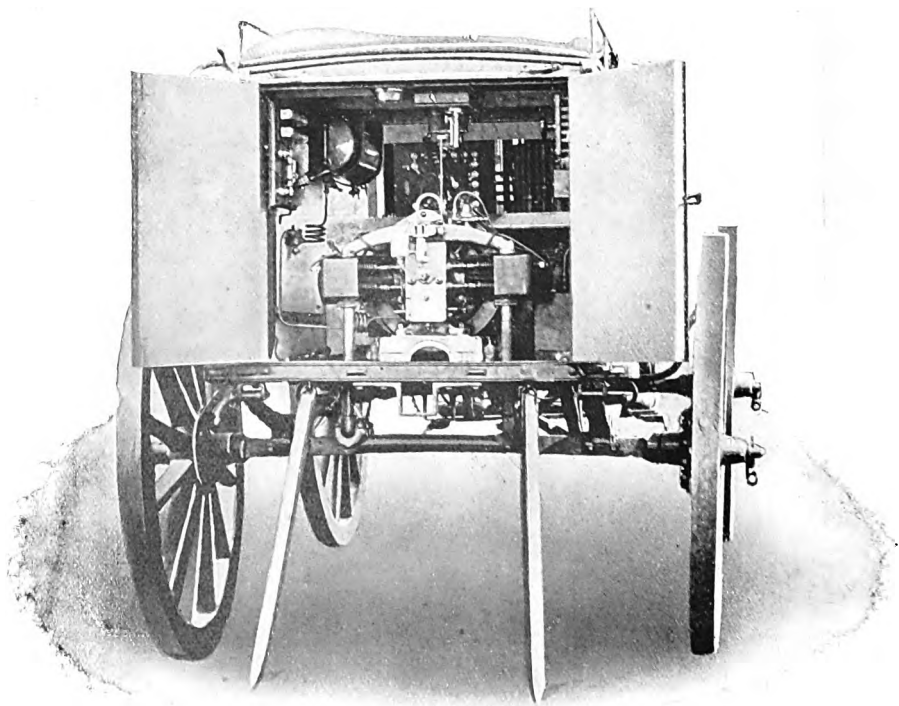


Engine and Instrument Carts Limbered together.
A. Engine Cart. B. Instrument Cart.

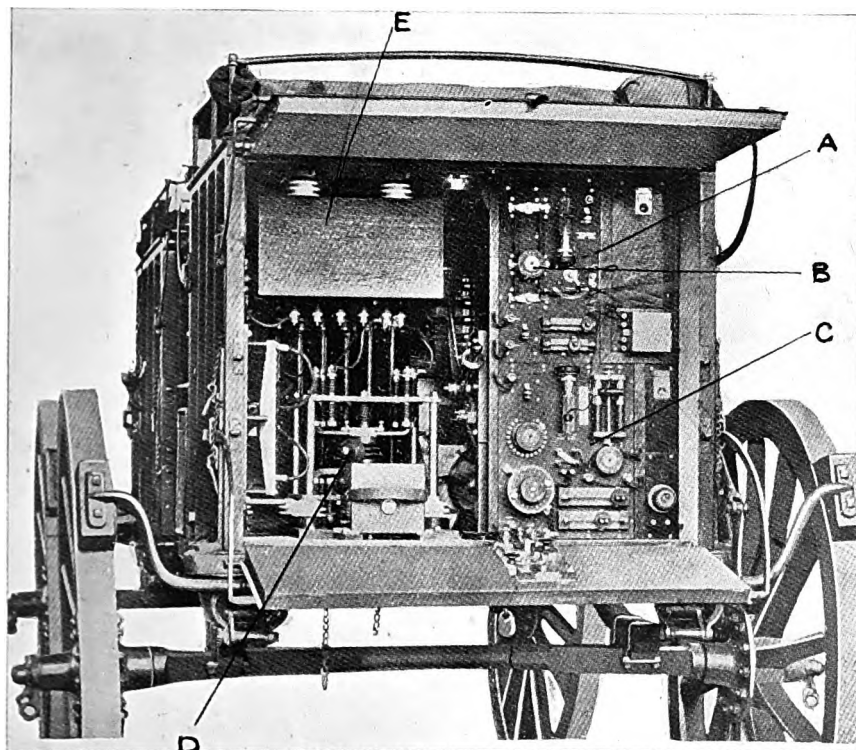


1½ K.W. Petrol-driven Generator of Marconi Company's Cart Type Station.

A. Petrol Engine. B. Blower. C. Jacket Covering Cylinders through which Air is Blown. D. Dynamo. E. Casing containing Disc Discharger.

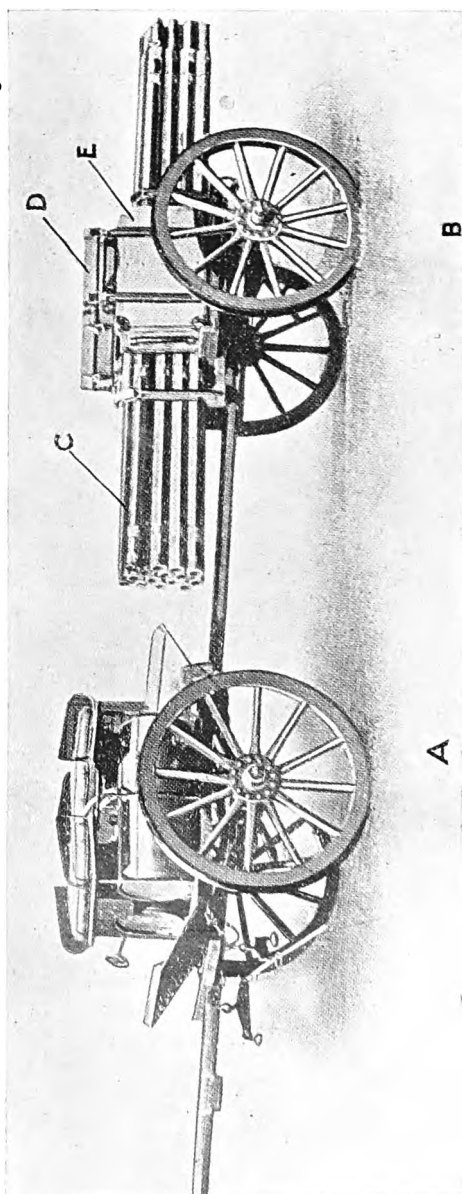


View showing Front of Engine Cart.



View of Apparatus in Instrument Cart.

- | | |
|--------------------------------|---------------------------------------|
| A. Commutator Receiver. | B. Change Tune Switch or Receiver. |
| C. Flexible Receiver. | D. Change Tune Switch of Transmitter. |
| E. High Frequency Transformer. | |



Supply Mast and Mast Cart Limbered together.

A. Supply Cart showing Fuel Tanks.

B. Mast Cart.

C. Mast Sections.

D. Case containing Aerials and Earths.

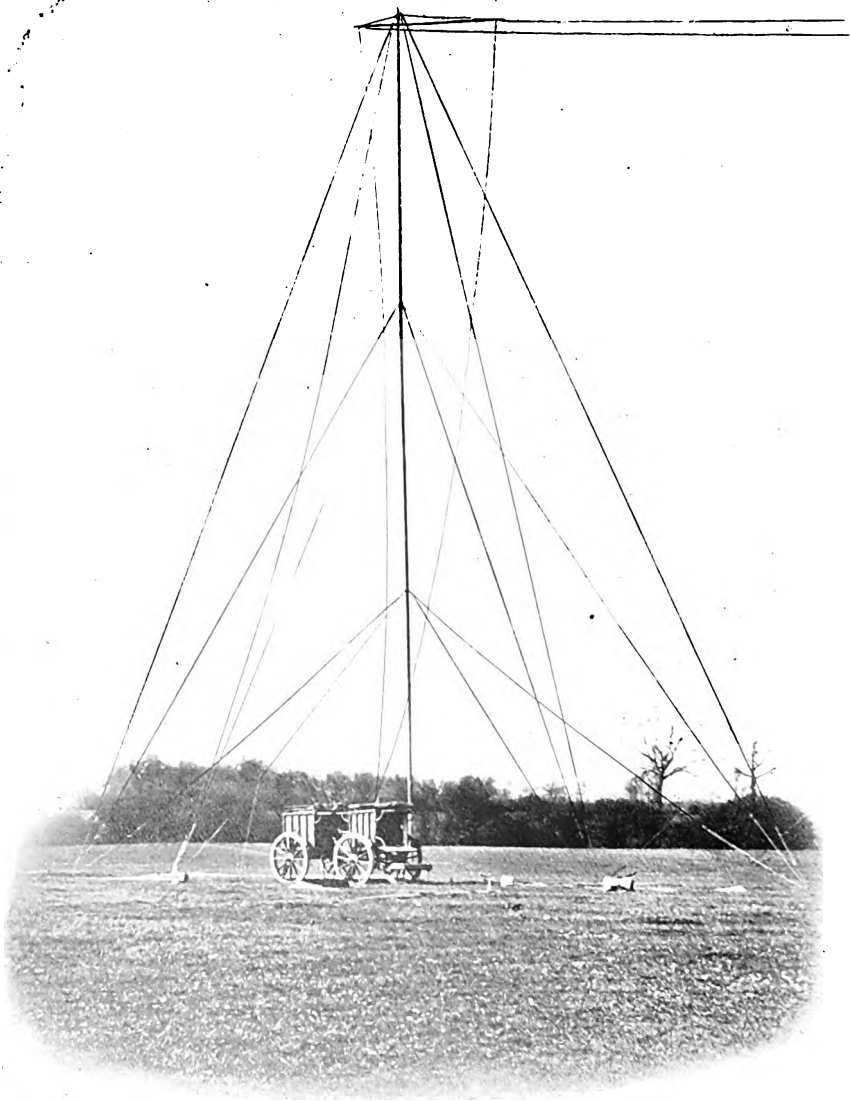
E. Case containing Gear for Mast.



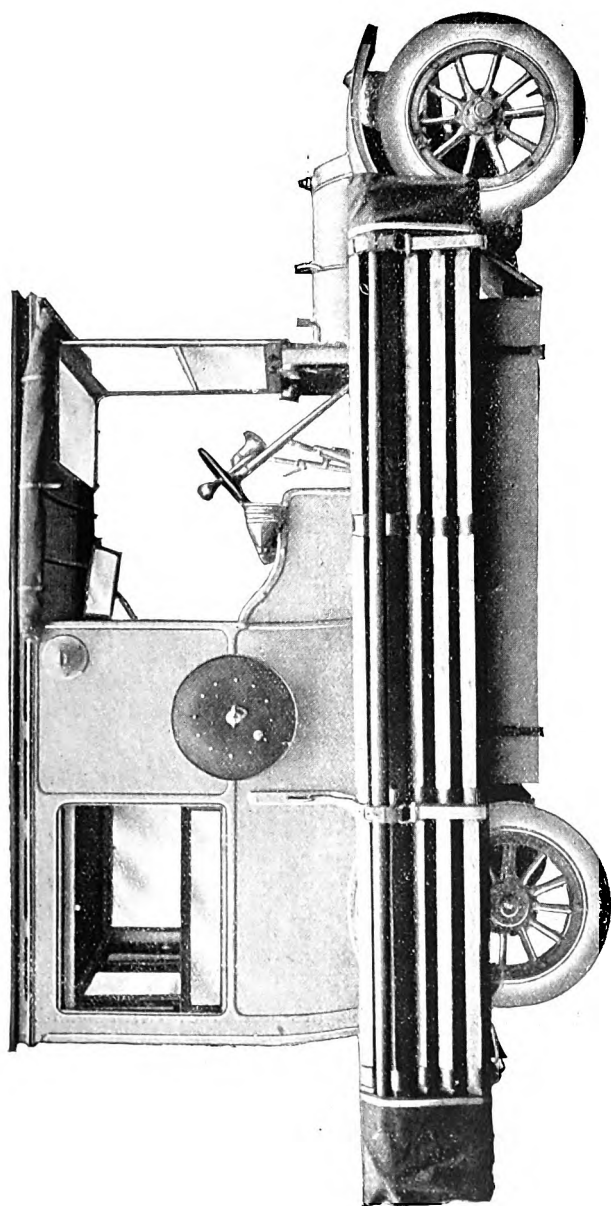
Mast being Erected.
A. Mast. B. Derrick.



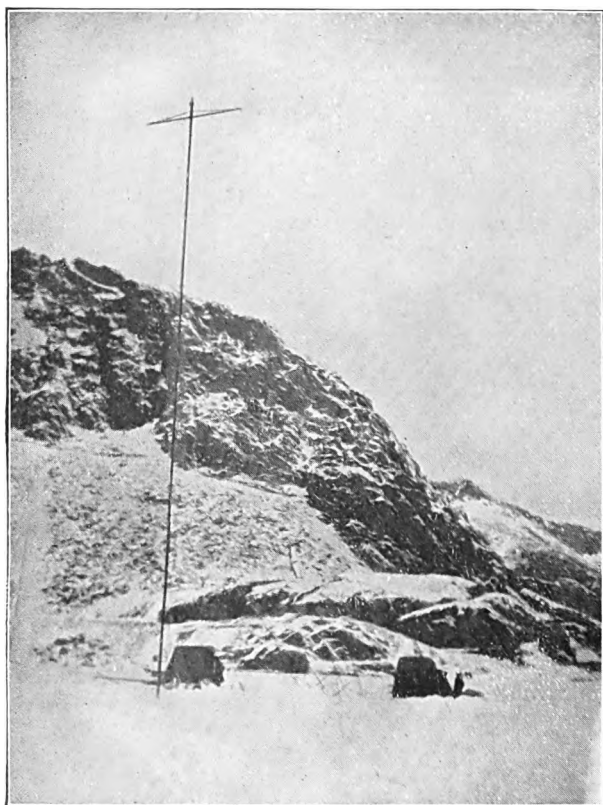
Erecting a 70-ft. Mast under Difficulties in Switzerland.



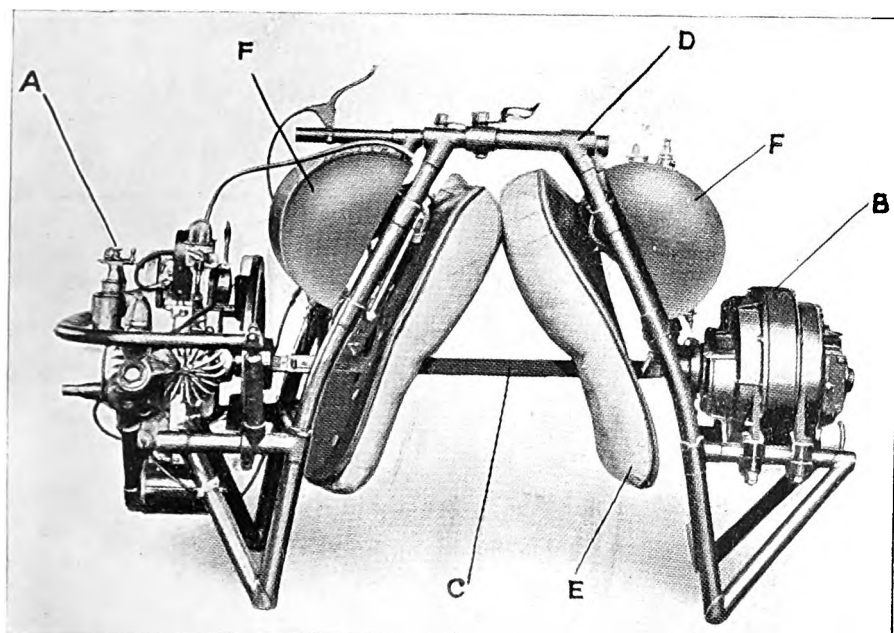
View of Cart Station in Operation. Only one Mast is seen in the Photograph, the Second one being out of the Range of the Camera.



Motor Car Station.

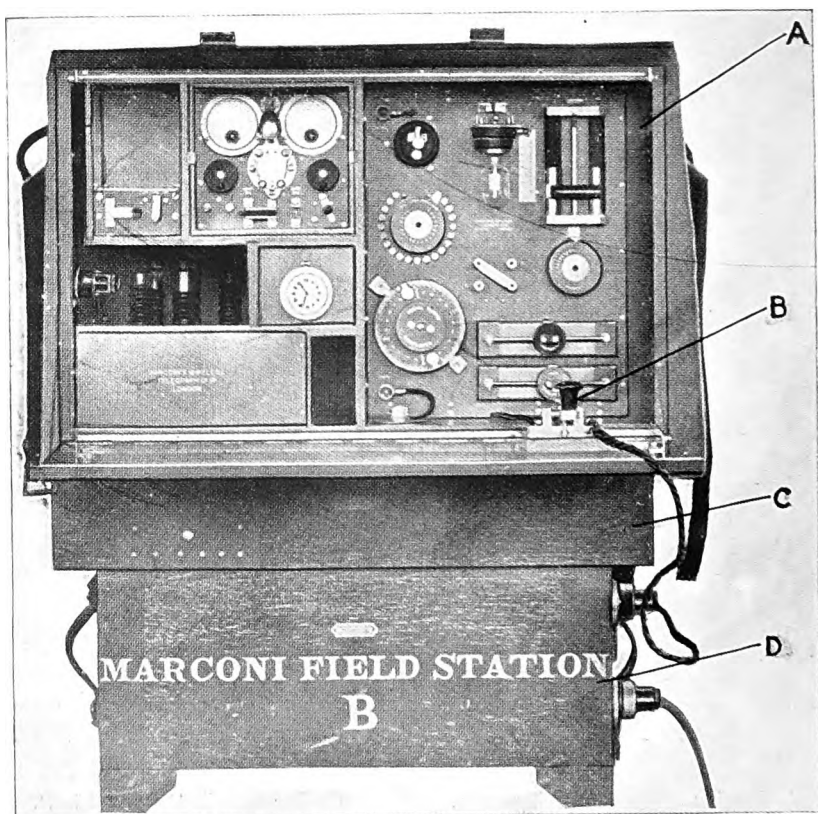


Cart Set Working in the Mountains of Switzerland.



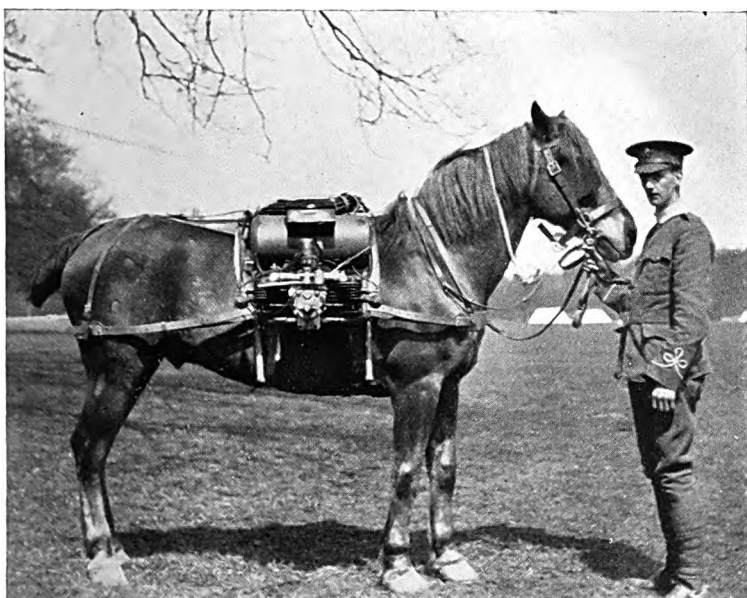
Generating Saddle of Cavalry Field Station.

- | | | |
|----------------------------------|----------------------------------|-------------------------------------|
| A. Engine. | B. Dynamo. | C. Telescopic Driving Shaft. |
| D. Rigid Frame of Saddle. | E. Padded Leather Panels. | |
| F. Fuel and Oil Tanks. | | |

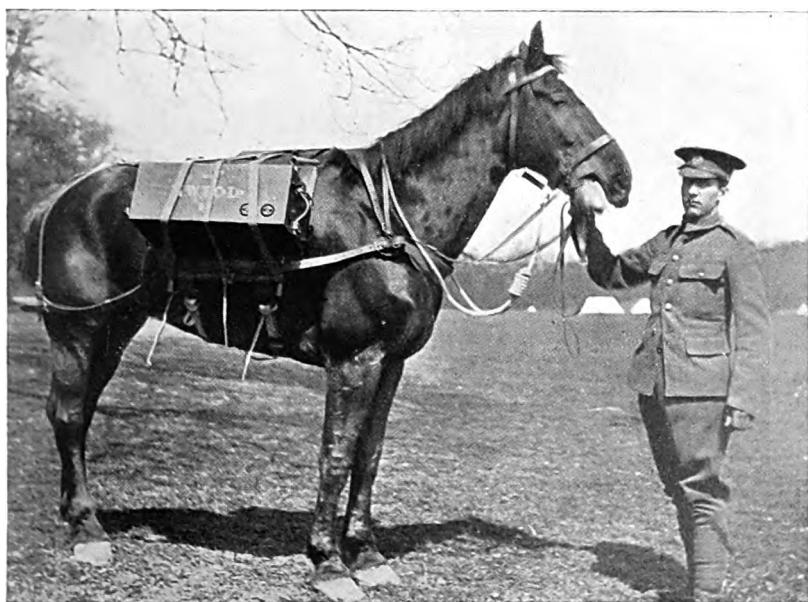


Instruments of Cavalry Field Station ready for Working.

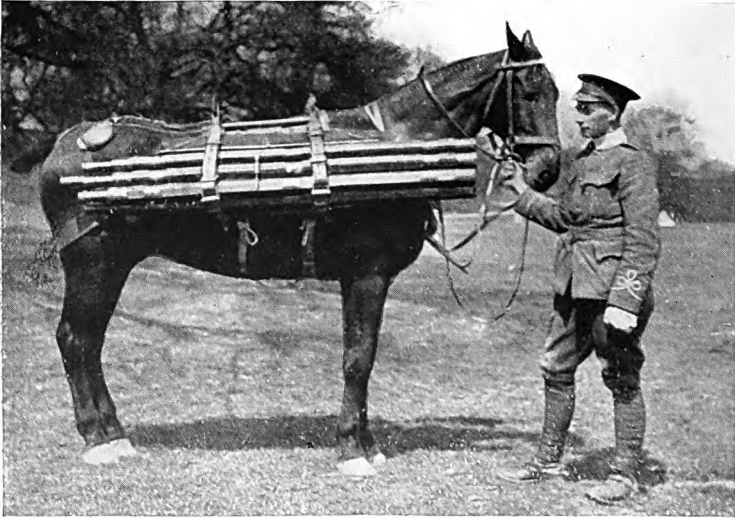
- A. Receiver Box. B. Manipulating Key. C. Box containing
Primary High Frequency Circuit. D. Transformer Box.



Engine and Dynamo Load Mounted.



Instrument Load Mounted.



Mast Load Mounted.



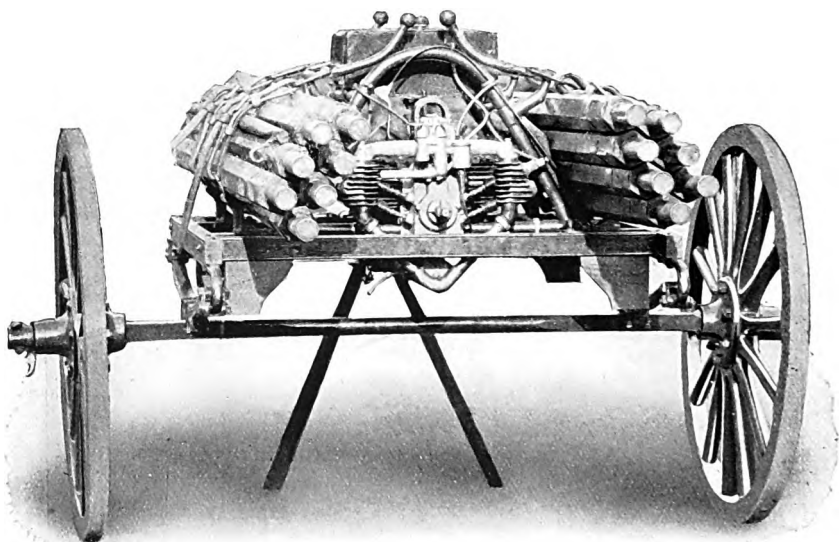
Mast Gear Load Mounted.



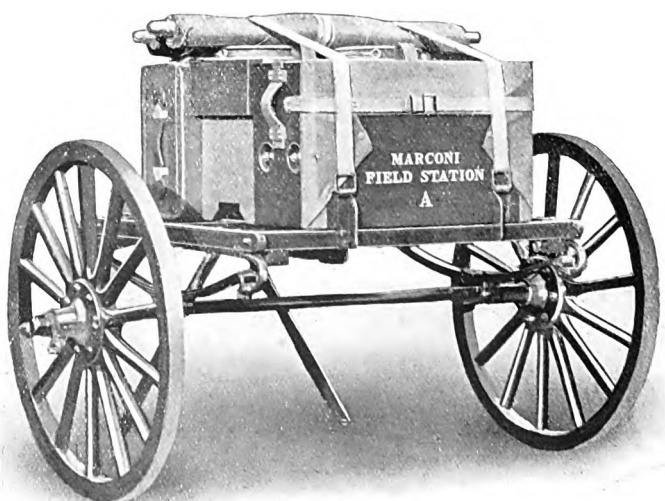
A Cavalry Field Station on Treck in Sweden.



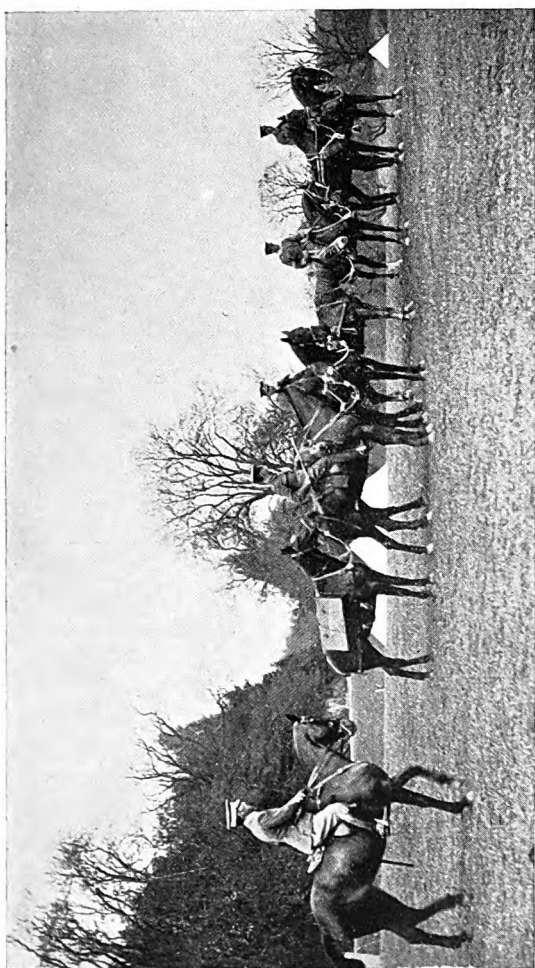
Cavalry Field Station working in Bulgaria.



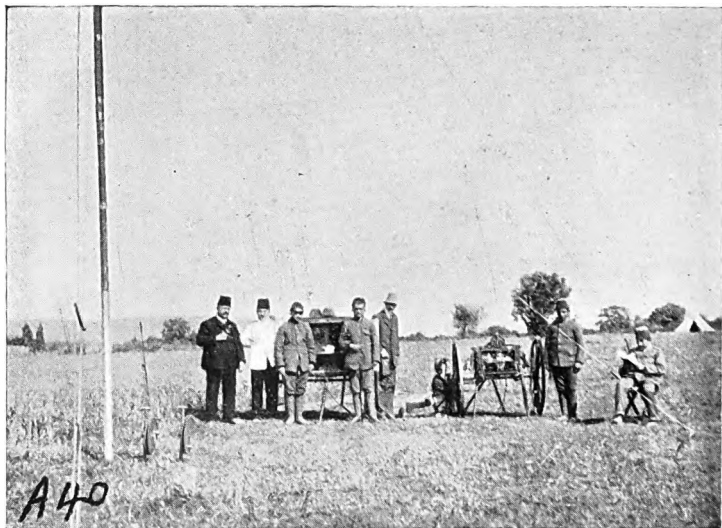
Engine and Dynamo Limber of Landing Station, showing Masts in position for Transport.



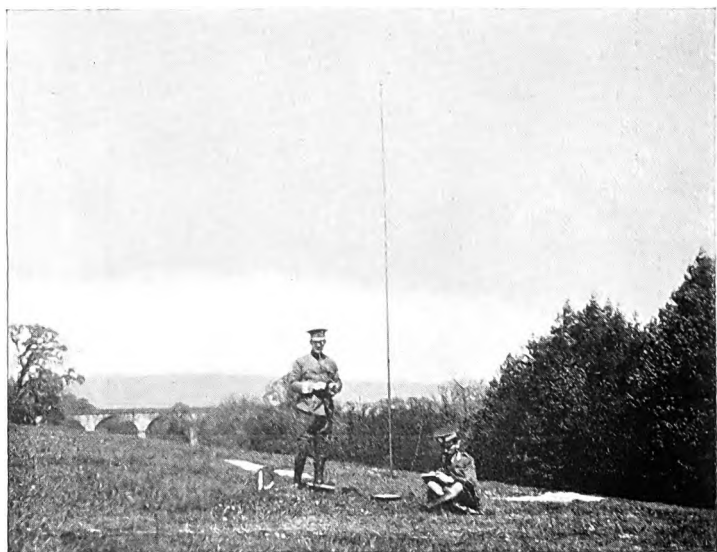
Instrument Wagon of Landing Station.



Cavalry Station prepared to Dismount.



Landing Station in use in Turkey.



Knapsack Station being used by Officers of the Westmorland and Cumberland Yeomanry.

IV.

THE EMPLOYMENT OF CAVALRY.

By COLONEL SIR PHILIP CHETWODE, BART., D.S.O.,
Commanding London Mounted Brigade.

PART II.

CO-OPERATION ON THE BATTLEFIELD.

There are but few I imagine who would deny that cavalry is the most suitable arm for reconnaissance and the other detached duties. A few even deny that, and would relegate cavalry to the museum, contending that mounted infantry, or rather mounted rifles, are sufficient for all purposes of modern war. With such I am not competent to argue; I can only hope for their sakes they may never find themselves members of such a force, which, out of reach of support of other arms, is engaged on an independent mission in an European war, for if they have the ill fortune to encounter a hostile cavalry force it will most assuredly be brought home to them in a most unpleasant manner that a modern cavalry division, with its horse artillery, its tremendous musketry fire, and its power of pushing home a mounted attack, is one of the most powerful weapons of war ever forged, in the hands of the man who knows how to combine the three.

When, however, we approach the question of cavalry co-operating, and by that I mean closely co-operating, with the other arms on the battlefield, and taking their due part in producing and exploiting what Napoleon called the "crisis" of a battle, I am only too well aware of a more numerous and formidable class of unbelievers. Some of them need hardly be taken seriously, some indeed are not even professional soldiers, but there does exist within the ranks of our corps of officers at this moment a considerable body of men who take no pains to conceal that they have no belief in their hearts that cavalry in modern war will ever again be able to intervene in the decision on the battlefield.

Is it the teaching of false prophets, or the totally misleading conclusions drawn by many from the South African and Manchurian wars, or the misreading of other history, or the curious idea some

men have that the fire effects of the rifle range and practice camp will be reproduced in all their deadliness on the battlefield? Or is it because of the impossibility of reproducing on peace manœuvres the fatigue, the nerve strain, the moral collapse, the opportunities for surprise, all the conditions in fact which give cavalry their chance in war? Or is it as Moltke reported to the King after 1866, "the destruction of its initiative at manœuvres, where criticism and blame had become almost synonymous?" I do not know. But that the impressions are there we all know, deep-rooted ones too, and the poison is all the more dangerous since in more than one instance it has had its origin in exalted quarters.

We know that the great Continental Powers, with whom, *pace* Mr. Norman Angell, we may at any moment be engaged in a struggle for our very existence as a nation, retain the strongest belief in the efficacy of cavalry intervention in battle, and train their troops accordingly. The disbelievers may say they are mistaken—possibly—but that is an opinion only, an assertion, which I contend no war up to date has proved. Suppose, however, they are right, or even let us say only partially right, are we wise to neglect even possibilities? How much attention is devoted, outside the Staff College, in the every-day training of the troops for war, to the consideration of how best to employ the arm against the enemy or to think out what we shall do if it is employed against ourselves? Not much you will allow. Must we not admit that the saying "the other arms have nothing to fear from the cavalry" is accepted as applying to much more than "unshaken infantry," and in the minds of many includes the words "at any time."

That the authorities recognised this was very evident from the memorandum on Army Training of 1910, in which officers were reminded that "the question had received full consideration by those responsible for the principles which should govern the training of the Army, and that the Regulations embodied in the Training Manuals must be loyally accepted and supported . . . mutual understanding, co-operation by all ranks, and confidence in their weapons, themselves and their leaders, can only be achieved by a close adherence to a common doctrine, &c."

This stopped, at any rate, official depreciation of the arm, but no one who knows the Army from within can say that it has resulted in adherence to a common doctrine as to its employment in battle.

Fortunately for us, more than a few highly-placed soldiers, men who will lead us in war, have the profoundest belief that it is only by a proper use and combination of all the three arms on the battlefield that decisive results will be attained, and fully intend to put their belief to the test.

The military chiefs of the great Continental Powers have the same beliefs and intentions, cavalry officers throughout Europe look

forward with the highest hopes to the next great war and fully purpose to take every advantage of the many opportunities they know will be afforded to them to intervene on the battlefield; possibly you say again, they may find themselves mistaken; we cavalry men say they will not, but as their contemplated action may be taken against us, it may be at no distant date, is it wise to take no thought for the morrow?

The modern cavalry officer, English as well as Continental, is determined that, in the words of our Cavalry Training Manual, "every victory which has been gained without cavalry having fully contributed its share, and every defeat in which cavalry has not sacrificed itself regardless of loss shall be considered discreditable to the arm."

Cavalry is the arm above all others that relies on moral effect, and many of its greatest tactical successes have been out of all proportion to the numbers engaged and the butcher's bill. Yet nothing is more difficult than to convince those who hold that modern war is simply a question of weight of lead and numbers, that above all such factors soars the sovereign power of the moral element, that human nature is to-day the same as in the days of the musket, the same as when Napoleon made his famous pronouncement on the comparative value of *moral* in war. The human eye still aims the rifle, the human finger adjusts the sights and pulls the trigger, and if the brain that controls both is not cool at the critical moment no modern science can ensure that the weapon will work itself.

Indeed to-day moral effect is more powerful than during the first empire, battles last longer, fire is infinitely more intense, the strain is more severe on the individual, and has to be borne to a great extent alone, without the support of the friendly shoulder next to you in the ranks, or the stiffening influence of discipline maintained by the immediate presence of the officer; and borne, moreover, by men rendered ten times more "jumpy" by education and the enervating effects of modern industrial life than the old-time soldier who scarcely knew what imagination meant.

The opponents of cavalry reason with theories, not with facts; they would have it history supports them, but it is only by misreading it that it can be made to do so.

Such men proved to three places of decimals, before the Russo-Japanese War, the utter impossibility of the bayonet charge under modern fire, yet it took place oftener perhaps than before.

Cavalry, like other arms, have felt the influence of the modern weapon, and like them have had to modify their tactics to meet new conditions; like them, as fire has become more powerful, the lines of approach, the attack and assault, have required either a longer period of preparation or more complete surprise.

But in recent wars it was not the intensity of fire that prevented

cavalry from taking their due share in battle, but the disregard of its abilities, too often by its own leaders, that paralysed it. Opportunities there were in plenty—fatigue, the limit of human endurance, mist, the dusk of evening or dawn, troops shaken by defeat, accidents of ground affording covered approach—all the many circumstances that give cavalry their chance. Sometimes the cavalry were there but the man was not—that is all. General Langlois in his "Lessons from Recent Wars," says "Cavalry can only give what is demanded from it; the British commanders in South Africa asked nothing of it."

The opponents of cavalry say they failed in South Africa and in Manchuria, that those wars established for ever the predominance of the rifle. Where and when did they fail? I never saw them do so in South Africa, nor can I read of their having done so in Manchuria; the conditions were not perhaps ideal for them, but that they failed is untrue, for the very good reason that they were scarcely ever given the chance either to fail or to succeed. If the rifle had beaten back cavalry in those wars when they attempted to obtain tactical results, there must have been frightful casualties, for cavalry once launched must either get home or melt away, but their casualties in battle were trivial in the extreme and were mostly incurred when on their own feet. On the rare occasions, however, in South Africa when they were let go, they obtained, as they will again, decisive results, frequently out of all proportion to their numbers.

At Elandslaaghts two squadrons converted a defeat into a rout.

At Diamond Hill sixty 12th Lancers, on miserable Argentines, sent to the rightabout 200 Boers who, full of confidence, were about to capture a section of our Royal Horse Artillery.

French at Klip Drift galloped the cavalry division over an absolute glacis through a semicircle of rifle and gun fire. The famed shooting of the Boers bowed respectfully to the moral element. As the mercury in the human barometer fell, so the muzzles of the rifles lifted, as they will to-morrow; and the Boers, having ponies, took flight. You will not have ponies. You will not be walking up and down tapping the muzzles of your men's muskets with your canes to keep them down, as your ancestors were wont to do inside their squares; are you certain your men, each for himself, will in such circumstances keep steady and aim low? French's casualties were negligible, but if he had not charged, the Dutch reinforcements would have necessitated an infantry attack which would have cost many more lives than he would have lost even if the Boers had stood and shot more steadily.

Our cavalry also remember that the men they may have to deal with will not be the hardened veterans of many of the campaigns of history, but short service conscripts peculiarly susceptible to moral influences. The English infantry, few in numbers as they are, will,

owing to their longer service, inspire far more confidence in the minds of their officers.

Cavalry, we are told, as if it were something quite new, cannot charge unbroken infantry with any prospect of success, but when could they? Certainly not in the days of the Great Frederick or of Napoleon, unless favoured by surprise or very exceptional circumstances. No one knew better than Frederick or Napoleon what would be the result of such an attempt, but that did not prevent either of them from ordering their cavalry to make it, if the delay or even temporary confusion they caused promised tactical results which justified the losses. And why not? If certain tactical results will lead to a quicker and more decisive decision, and such results cannot be brought about by the slower-moving infantry or the artillery, but can by the mounted arm, why hesitate because they will suffer losses in doing so? As well hesitate to commit the infantry to an attack. Yet I am very sure that there is a class of critic who would condemn an operation even if successful which involved a 5 per cent. loss if carried out by cavalry, but would have nothing to say if a similar result was obtained by the infantry with a far higher percentage of losses.

Does the end justify the means? That is the only question.

At Aspern, Napoleon threw 5,000 cuirassiers against the unbroken Austrians; they did not ride over a single battalion and left 3,000 men on the field, the most expensive attack in history, but they achieved the tactical object and checked the offensive till reinforcements were brought up. Can anyone doubt who has read the account that the sacrifice of these 3,000 gallant men saved many more lives in the end?

At Wagram, Napoleon attacked with his cavalry over and over again without any consideration for it. The Austrians maintained their position, but he gained his object—time to bring up to close range his great battery of 100 guns—which prepared the way for the two infantry attacks that decided the day.

No one could call these attacks successes as charges, yet they achieved their object; in war the conservation of human life is bound to be secondary to the obtaining of tactical results.

As General Haig puts it in his "Cavalry Studies," "the securing tactical results, the fulfilment of its mission is the sole criterion of the real value of any arm. Who can possibly entertain such a narrow and primitive idea of the principles of war as to imagine that the rôle of cavalry is gauged by the number of losses inflicted by the sword or lance? The 5,000 cuirassiers who charged at Aspern, the 40 squadrons which hurled themselves in the centre of the Prussian Army at Eylau, the floods of cavalry which inundated the plains of Waterloo, did they produce really sensible losses by their shock? Certainly not, and it is of very little consequence whether they did, since they produced important tactical results."

What would be said if on manœuvres cavalry were to take the risk French did at Klip Drift, or if they were used as Napoleon used them over and over again? Madness would be the mildest word employed, I think, but it is by such "madness" that great commanders achieved their highest successes. And it will be so again.

What are the circumstances that will give cavalry their chance of a decisive success? Captain of Lancers (later General) Bechtold-shein, in an article published by the *Revue Bleue*, of the 2nd October, 1897, thus describes the almost unbelievable success of his attack at Custozza against the Cerale Division. "The division left Manzambano at three in the morning and at 11 o'clock I had them routed entirely. It had marched eight hours without rest, not at the ordinary pace to which troops are accustomed, but at that enervating, killing gait of the battlefield, against accidents, blows, for ever waiting to attack or not to attack. When troops come to this stage they no longer guard themselves, they do not even think of doing so."

The cavalry suddenly precipitated themselves against the advanced brigade; first a battalion, then a battery, then the brigade and, finally, by some sort of instantaneous contagion, the entire division were thrown into disorder, and had to be rallied several miles in rear. At such moments it matters not if men are armed with reaping hooks or magazine rifles.

Again, what were the reflections of Von der Goltz when he viewed the battlefield on the evening of Vionville?

"The forces were decreasing as they advanced across the meadows and the ammunition was being exhausted. Many officers had fallen.

"And those who were directing the advance kept asking themselves: what if a mass of the enemy's cavalry should appear on our flank and pass over the battlefield like a tornado? It would sweep away the debris of the infantry without any trouble."

Some who read this may have felt similar fears at certain moments on active service, with their men at the end of their tether, when the best of them have to make superhuman efforts even to remain awake. Some of them may have plodded through the mud, wearied and dispirited in the retreat from Dundee to Ladysmith, some may have lain all day without food or water tied to the ground by an overwhelming fire at Magersfontein, some may have taken part in the retirement after the disaster at Stormberg. Would any of them say that they would have regarded with equanimity the sudden irruption of wave after wave of horsemen at such moments, would they like to guarantee that their men, fine as they are, would have remained unshaken? Would they say that an increased fire from mounted rifles or fresh reinforcements would have produced anything like a similar effect?

Cavalry is the only arm that can produce such an effect, whose speed permits them to take advantage of the right moment, and the

commander who remembers it and is resolute to make use of them, especially towards the end of a battle, will obtain all the results of the past, even greater ones possibly, by reason of the increased strain that modern war imposes on the combatants.

Cavalry in the wars of the future will, when occasion demands it, again hurl themselves against infantry as the Austrians did at Koeniggratz, or the Prussian cavalry at Breslau against the Austrian grenadiers, or Napoleon's cavalry against the Austrians at Wagram ; they will incur huge losses in doing so and perhaps, as they have done before, fail to ride over a single battalion.

A future Murat will, as he did at Eylau, again pierce the Russian centre. Cavalry will again decide the final outcome as they did at Borodino and Dresden, or avert disaster as they did at Essling. What matter if their losses be heavy if by their action they obtain the desired tactical results ?

What does history tell us as to the employment of cavalry in battle ? It tells us that to obtain such decisive results in battle all three arms must be used in co-operation. That cavalry must be used on such occasions in masses, their efforts directed towards the same point as the decisive infantry attack, and not frittered away on minor operations and wild goose chases on the flanks which will leave them out of reach when the main issue is decided. Above all, it teaches us that the man is necessary, the man who can judge the moment when to order his cavalry to intervene, and the man who can lead them when he does.

The duties of cavalry co-operating in a general engagement consist of, in the words of Sir John French, reconnaissance, deception, and support. Their action throughout must be guided by one thought only, to forward the success of the infantry by every means in their power. If they are to do this it is obvious that they must keep in close touch with them and their commander must be fully acquainted with the course of the action. If they are employed as is so often the case, wide on the flanks, they will not only be out of touch, but you will be unable in all probability to get them back in time to make use of them in the decisive attack.

Hooker, at Chancellorsville, planned with his 130,000 men to hold Lee's 60,000 Confederates with one Corps, and with four others to turn the latter's left flank. All the cavalry except one brigade were to move still further round and cut Lee's communications. Stuart's cavalry refused to be drawn off by this wide movement and persistently struck at the flanks of the Federal turning force, the one brigade being too weak to prevent him. The stronger cavalry, also, were able to get the most precise information, and the whole movement became clear. Lee was enabled to order Jackson's famous flank march, Stuart's cavalry were there to cover it, Stoneman's was not there to delay it. Chancellorsville was lost through a faulty employment of the cavalry.

At the second battle of Plevna the protection of the Russian right wing was entrusted to 12 sotnias and 6 guns. This cavalry operated 5 or 6 miles away from the flank and failed to achieve any appreciable results. At 3 p.m. the Commander-in-Chief considered his victory was certain, and ordered his cavalry to cross the Vid River and cut off the enemy's retreat to Sophia. Several miles had to be covered to do so. The retreat of the enemy never came off, it was the other way round, and the cavalry when required were too far off to cover the retirement of their own army.

Cavalry employed wide on the flank will frequently find that their action is restricted by protective detachments holding tactical points and so strongly posted as to preclude all idea of mounted action against them, and their action will be indecisive.

If the hostile cavalry mass are also employed on a wide turning movement on the same flank as ours, a cavalry encounter may take place far away from the point where the principal decision has to be come to. Even if successful, such an action may take place too far away to admit of the victorious cavalry taking part in the main battle. It may be, of course, that before taking part in the decisive battle the cavalry may have to overcome the hostile cavalry if the latter are there and aggressive. But if the hostile cavalry are operating wide we must avoid sending ours after them. They must be watched, of course, and protective detachments made to check and delay them, but we must above all things prevent our cavalry permitting the main battle to go on without taking any part in it. The very presence of such a force constitutes a very serious threat and may have great influence on the enemy.

As the time draws near for general engagement, a closer concentration of the cavalry will take place, and according to circumstances the independent will be reinforced by a portion of the protective, or *vice versa*, while fresh duties will be assigned to both.

During the opening phases they will be employed driving in the enemy's cavalry so as to gain for us freedom of manœuvre, co-operating in the advanced guard actions and covering the arrival and assembly of the main columns, and in active tactical reconnaissance of the enemy. During the development of the action they will reconnoitre the approaches to the battlefield, close in the flanks, outflank the hostile wings, and harass and delay the enemy's columns marching towards the scene of action. In the battle of encounter, or when their own side is on the defensive, modern cavalry masses are enabled by their fire power to deceive the enemy by the formation of false fronts and false flanks, causing him to deploy unnecessarily or in an unfavourable direction.

When such preliminary work is no longer possible, and the hostile forces are face to face, an even closer concentration will take place, and it is now that commanders must beware of parting with their

cavalry masses. The cavalry will now be distributed to act in conjunction with the other arms according to the plan of battle. The flanks will be securely closed by protective detachments, each section of the battle or each division will be allotted a certain number of cavalry, who will follow its attack as closely as the ground and circumstances permit, or co-operate with it in its defence. Such bodies will vary in strength from a squadron to a brigade and must be prepared to take advantage of favourable local circumstances to surprise the enemy, to seize positions in front or on the flanks of the slower-moving infantry, to co-operate with or repel local counter-attacks, and towards the end of the action to take full advantage of the moral and physical degeneration induced by the prolonged action of the other arms.

If the general plan of the action includes envelopment of one or both flanks of the enemy, involving a so-called turning movement, cavalry in large numbers are essential, not operating so wide as to be out of touch with the movement, but in close co-operation with the other troops detailed for it.

The mass of the cavalry will come under the orders of the Commander-in-Chief and become his "cavalry reserve," the word reserve not being used in the ordinary sense, but as Napoleon used it to denote that they are reserved to him for his own use. They will be placed by him in positions of readiness, and move by his order from cover to cover following as closely as possible the troops destined for the decisive attack, and taking part in it according to circumstances, either with fire or, if necessary, by mounted action. Under his direction they will strike at the same objective as the decisive attack, assist in the general counter-stroke, envelop the enemy, increase the effect produced by the other arms by following up and overthrowing the disordered enemy and prevent them rallying, or sacrifice themselves in order to save the other arms in retreat, or to allow reserves to come up.

The chief commander alone has the knowledge of where to place them and when they may best be used to further the main object. It may be in mass on the left flank, as at Austerlitz, or in the centre, as at Eylau, or in four groups, as at Friedland, but always with the strongest group where he alone knows it will produce the greatest effect. He alone has his finger on the pulse of the battle.

Weapons have modified the conditions which obtained of old ; we shall not be able to keep our cavalry as close to the line of battle as Napoleon did, and it is probably only towards the end of a fight that they will be able to approach under the cover of previously reconnoitred dead-angles and other cover near enough to enable them to cross the final uncovered zone without undue loss. But no one who has seen a cavalry division, either on open ground like Salisbury or in more enclosed country, can fail to have noticed how wonderfully such a large mass is concealed by slight folds of the ground, woods,

villages, and other features, or how quickly they can pass from cover to cover when necessary.

Those who have been in war will have noticed also how, when under fire, each man's attention is concentrated on what is straight before him and how difficult it is, in the present dispersed formations, to alter the target rapidly, and cavalry cover the ground extremely rapidly.

Some say, also, that these dispersed formations offer a poor target for cavalry. Perhaps in a sense they do, but they are for that reason more easily penetrated and bodies in rear more easily reached. If an attack comes from the flank the argument as to the target does not carry so much weight, and there is less scope than there was in the old formations for the influence of discipline. Do not imagine that holding a mass of cavalry "in readiness" condemns them to "inaction." There is no inaction in the strained attitude of the athlete awaiting the starting pistol. Nor is there inaction in the artillery batteries which are not brought into action in the opening phases of a battle—each arm has its place, its time, and its opportunity.

Every field will present its own problem, and demand a different use of the cavalry, but the principle will be the same in all. In cavalry we have the arm of all others which can create and exploit the situation which turns the tide of battle, confirms victory or minimizes defeat, but to do so they must be used, not as a separate arm fighting an independent action far away from where the main issue is decided, but as an integral part of the whole, an essential complement to the other arms. They are ready to be so used and to bear their share of the losses incurred by others.

Cavalry await the hour and the man.

V.

MOUNTED RIFLEMEN.¹

By MAJOR J. J. COLLYER, Cape Mounted Rifles.

FOR several reasons it is well to state at once that it is not proposed to discuss in this article the relative merits of "shock" and "fire" action.

In the first place, there seems at present to be far too great a tendency to take extreme views, and to adopt, as it were, an attitude of vehement defence of either tactical action to the disparagement of the other.

Secondly, it must be remembered that high and competent authorities, with whom it ill becomes us to enter into expressed disagreement, have decided that cavalry trained to shock action—and the word "cavalry" connotes throughout this article mounted troops so trained—is a necessity, and the same authorities admit that the employment by cavalry of dismounted fire action is essential to its full tactical efficiency.

Surely we shall be better advised in endeavouring to combine effectually these two widely differing tactical methods, a matter of extreme difficulty at present inadequately recognized, than in adopting the partisan attitude which is too prevalent.

It may also be well that the writer, with many years' service in a permanent regiment of mounted riflemen behind him, should declare himself as no anti-cavalryman.

Though the writer does not regard a kopje held by mounted riflemen behind strong natural cover and dominating an entirely open plain to an extent of some 800 or 1,000 yards as a suitable objective for a cavalry charge—and he has seen such an objective selected for such a charge not long ago and not far away—he does not hesitate to allow freely that in war, as in all departments of human activity, the man who is determined to do his utmost to reach his goal is a very difficult man to stop. The cavalry spirit, as we should rightly

¹ Being the elaboration of the notes of a lecture delivered in the presence of Field-Marshal Lord Methuen, G.C.B., G.C.V.O., C.M.G., Commanding-in-Chief in South Africa, to the officers of the garrison at Roberts' Heights, on January 12, 1912.

understand it, is that temper described by the deepest thinker on the art of war as not shrinking from "the bloody solution of the crisis, the effort for the destruction of the enemy," which he characterizes as the "first born son of war."

To attempt to cover all the ground available for discussion within the limits of this article is out of the question, and it is proposed to consider only some points specially connected with the arm concerned.

MOUNTED RIFLEMEN—A SEPARATE ARM.

The first of these points is that it is necessary to recognize that mounted riflemen is an arm as distinct from other arms as is artillery, cavalry, or infantry. The inherent difficulty of combining the characteristic tactical methods of two arms in the tactical employment of one, and the fact that the measure of this difficulty in relation to cavalry and mounted riflemen is, if not entirely ignored, at least insufficiently appreciated, seem to furnish a reason for the alternate violence and vagueness of the views on shock and fire which are constantly being expressed.

All military publications, particularly those which deal especially with mounted troops, devote much attention to the question of dismounted fire action by cavalry. In almost every instance either strong partisanship or a curious lack of finality and decision marks the opinions expressed by writers who endeavour to assign to dismounted fire action its right and proportionate value as a method used by cavalry.

Even the late Colonel Henderson—not the least charm of whose writing is to be found in its singularly clear expression—leaves us with a distinct feeling of indefiniteness and almost of contradiction.

For instance, writing of "The Tactical Employment of Cavalry," he says:—"It [the American cavalry] could charge home with the revolver or sabre. It could manœuvre sufficiently well for all practical purposes. . . . Great cavalry combats in which both sides rode at each other were far more frequent than in European campaigns, and instances of cavalry charging infantry are so numerous as to completely disprove the common belief that the American horsemen were merely mounted infantry. The truth is that the Americans struck the true balance between shock and dismounted action, and used fire and *l'arme blanche* in the closest connection against both cavalry and infantry."

It is not too much to assert that the above statement conveys the idea that the American mounted troops practically solved the problem which is found to be so productive of controversial views to-day—namely, how to make a finished cavalry soldier and thoroughly efficient mounted rifleman of the same man. Be it noted that cavalry as well as infantry is stated to have been the objective.

Yet from the same writer, discussing "The American Civil War,"

comes the following :—" It does not appear that, as a mounted force, so far as shock action goes, the American cavalry came near the European standard. To sum up, my opinion—I give it for what it is worth—is that they should charge *infantry* [the italics are mine] when surprised or demoralised ; that they fought well on foot, but were not equal to well-trained infantry ; and that, as cavalry, they were deficient in manœuvring power and cohesion."

Here is something very different from the all-round excellence indicated in the first passage quoted, and the two extracts are given to illustrate how indefinite even the best authorities are.

This, however, brings us to the whole question of the degree of combined efficiency for shock and fire reached by the American cavalry in the War of Secession. Critics of repute continually refer to these mounted troops as the stock example of thorough efficiency in the use of the *arme blanche* mounted and of the rifle on foot, and it is well to determine clearly the extent to which such an assumption of dual efficiency is warranted by known facts and stated opinions. In a recently published book, *The Campaigns of Gettysburg*, "Miles" writes :—" The true deduction to be drawn is that what has been done once can be done again, and that with this example before them it is surely possible for our cavalry leaders to make their men equally efficient with rifle and cold steel, and thereby emulate or even outshine the record of the great Confederate commander." With the sentiment expressed by the writer no one is likely to quarrel, but as to the equal efficiency with rifle and cold steel, agreement should be very cautiously accorded to his inference.

On page 444 of Denison's *History of Cavalry* is recorded a statement by a Confederate horseman :—" It was very easy to charge down a road in column of fours, but very hard to charge across country in extended line and keep any sort of formation. Then we never used sabres, and long guns were not exactly the weapons for cavalry evolutions. We found the method of fighting on foot more effective ; we could manœuvre with more certainty, and sustain less and inflict more loss." This statement comes from a Confederate cavalryman, and in the earlier stages of the war, at any rate, the Confederate mounted men were far better horsemen than were those of the Union.

We have it from a general officer who took part in the war that "he had learnt all about commanding 50 United States dragoons and forgotten all about everything else." The Regular cavalry were employed on frontier police work in detachments, and were not trained to shock action.

The American mounted troops never met cavalry in the sense in which we apply the term in this article, and were never exposed to the risk or ordeal of a well-ordered charge by a hostile mass of highly-trained men and horses equally well prepared for their special work. Those who study available records are aware of the extreme difficulty

which attends any investigation as to ground, situation, objective, or definite tactical result. We read of charges up to walls and hand-to-hand fighting with revolvers over such obstacles, of charges in column of route down roads, of confused *melées* where combatants hacked at each other ; but such rushes are not a correct exposition of the tactics of mounted shock. Thus, if we admit the excellence of the American mounted men as mounted riflemen, there is not the slightest ground for admitting that they were efficient cavalry, since any opinion as to their value for shock—data for the information of such an opinion being insufficient—must be mainly a matter of speculation.

The justice of the conclusion that the American mounted troops were thoroughly proficient in cavalry and mounted rifle tactics is at least open to considerable doubt, and the inference that such was the case is, to my mind, dangerously misleading, in that it tends to encourage an idea that effective combination is not so very difficult after all. A recognition of the very great difficulty, firstly, of teaching ordinary men to discriminate between occasions when fire should be resorted to and shock should be undertaken, and secondly, of combining the two tactical methods in the combat, will go far towards a solution of difficulties and a harmony of present conflicting views.

It has been said that the Americans showed the possibilities of a new arm. They did, and the arm is mounted riflemen.

And now let us consider briefly the special qualities and characteristics required from cavalry for shock action. I cannot do better than quote again from Colonel Henderson. He writes :—“ Resolution, a certain eagerness for battle, the quick decision which seizes an opportunity the instant it offers. The sum of these three qualities is dash. The spirit of self-sacrifice is to be sedulously fostered. The cavalry soldier must be taught to consider himself as, first and foremost, the soldier of the charge and of the *melée*.” Shortly, shock action may be summed up as the possibility or even probability of heavy sacrifice for a commensurate advantage. Its success depends, firstly, upon the recognition of the situation as affording adequate return for expenditure of life—or, in other words, upon the possession by the responsible leader of general tactical judgment of a high order ; and secondly, upon the choice of the moment and ground suitable—that is to say, upon the leader’s special cavalry tactical ability. The chance is fleeting, and correct decision entails the constant watching of events with one object—the charge—in view, and though the leader is mainly concerned with this difficult and momentous question, as Colonel Henderson says, “ it is much to be doubted whether any body of cavalry could really be called efficient of which both leaders and men were not of the same temper.”

The special tactical point of view demanded from the cavalryman is singularly different from that which is necessary to ensure the mounted rifleman’s correct appreciation of his rôle in the fight. The

following are the main principles which underlie the true tactical employment of mounted riflemen.

This arm gains all its power from mobility and fire effect. Mobility is placed first advisedly, for with the least loss of mobility—be it actual when mounted or potential when dismounted—the rifleman foregoes an advantage which he should never yield. Mounted riflemen should never be caught in the saddle by cavalry. The charge, instead of being constantly and intently watched for, is to be strictly forbidden and eschewed, and the soldier must be taught that his rifle is his only weapon, and that the advantage conferred by his horse is that by bold and confident use of it he may develop fire rapidly and from unexpected directions.

Here is the antithesis of what we have recognized as an article of faith for the cavalryman. Every soldier must be ready to sacrifice himself at the right time, and we may well conceive a situation where the eventual annihilation of, say, a detachment holding a vital position in the attack or a rearguard of mounted riflemen may be a perfectly legitimate consequence of his dispositions to be accepted by a commander; but the self-sacrifice which, with the cavalryman, must be an inevitable feature of his shock action would be, in nine cases out of ten, the act of a fool on the part of a mounted rifleman.

For the rest, we expect from the latter everything which we look for from the cavalryman, except shock action. Horsemanship and horsemastership must be common to each arm in an equal degree of excellence, while in the case of Regular units the marksmanship and reconnaissance of the mounted rifleman should be the better of the two, for no time need be given to shock training of either man or horse.

It is hardly too much to say that the difference between a well-trained cavalryman and mounted rifleman is temperamental. Wolfe, in a letter, expresses the temperamental element in the cavalryman's character thus:—"If my poor talent was consulted they should place me to the cavalry, because nature has given me good eyes and a warmth of temper to follow the first impressions." The ever-present dread of the cavalry officer that recourse to the rifle will destroy the cavalry spirit to which, if shock is to be worth a rap, he rightly attaches so much importance, has its origin in the temperamental influence, though, perhaps, the fact may not be universally realized.

The evidence of the following extracts all goes to show the great difficulty of training ordinary mounted soldiers to decide when to charge and when to resort to their rifles.

Colonel Kidd, a Federal cavalryman, says in reference to Custer's brigade in the War of Secession:—"From the time of the organization of the brigade the first regiment had been designated as distinctively a sabre regiment, and the fifth and sixth for fighting on foot, and the result was that with them dismounting to fight when in contact with

the enemy in the early part of their terms of service, became a sort of second nature." Later we read that:—"When Custer wanted to put a single regiment into a mounted charge he generally selected the first, because it was not only older and more experienced, but had many officers who possessed both great personal daring and the rare ability to handle men in action, keeping them well together so as to support each other and accomplish results." We learn, too, that the tactical employment of the brigade was by the use for fire of the units with mounted rifle proclivities in close conjunction with those disposed to charge for shock, though they were occasionally used for either purpose as a whole.

To take the other side and refer to the recently published diary of a Confederate soldier, Randolph H. McKim. We find, in the account of a campaign of Early's, mention of a hand-to-hand fight with swords as "a rather rare occurrence, for the cavalry were rapidly being transformed into mounted infantry and used the carbine and repeating rifle much more often than the sword." Clearly the result of allowing men, originally told to charge, to have recourse to their firearms.

I venture again to express the opinion that the doubt, indecision, and even the controversy which to-day are inseparable from the investigation of the true tactical rôle of modern cavalry, are due largely to a failure to appreciate fully the immensely increased demand which is imposed on the cavalry leader and those under him, who are less mentally equipped, by compelling them to adopt two distinct forms of tactics, and to decide the extent to which either form fits any situation.

Only recognized as a separate arm, and trained as are other arms to a special form of tactics, can mounted riflemen reach their highest efficiency. Cavalry and mounted infantry are alike compelled to rely upon fire, but neither can hope to arrive at the standard which should be reached by mounted riflemen—that is; finished horsemen well trained in the employment of fire.

And it is here necessary to refer in some detail to mounted infantry. Despite the unfortunate use by writers of the terms of mounted riflemen and mounted infantry as synonymous, mounted infantry are not and never can be mounted riflemen, if the latter term be correctly applied. Mounted infantry are foot soldiers trained to a moderate standard of horsemanship, or, as Mounted Infantry Training tells us, "to ride sufficiently well to accomplish long marches without undue distress to man or horse." Here is expressed the constant and unavoidable limitation of the mounted infantryman—indifferent horsemanship and all that it involves in the way of loss of mobility and lack of boldness. Mounted riflemen are as capable horsemen as are any other mounted troops. The possibilities of the action of mounted riflemen must be estimated in the light of the performances of expert horsemen—the mounted men of the American Civil War

on the Southern side in its earlier stages, or those of the late South African Republics, for example.

Whenever the work of mounted infantry is compared with that of men enlisted and permanently trained as horse-soldiers, a great want of venturesomeness is sometimes to be observed in the case of the former. This lack of push is especially to the fore on reconnaissance, when mounted infantry often adopt far too passive a rôle. The keynote of successful reconnaissance is individual capacity and complete self-reliance in a situation of much strain and uncertainty. The whole matter resolves itself into the relative confidence in himself as a mounted man of the thoroughly and of the partially trained horseman. There is the fundamental difference. The officers of the mounted infantry, as it is organized to-day in the British Army, are admirable mounted rifle officers, and to their keenness and excellence the measure of success attained is due; but the rank and file must always suffer from the handicap imposed by absence of self-confidence, and it is a severe handicap in war.

SOME SPECIAL POINTS IN CONNECTION WITH MOUNTED RIFLE TACTICS AND TRAINING.

The following seem to be points of some importance in connection with the development of mounted rifle tactics and training:—

(a) The essence of these tactics is mobility and fire effect. General Christian de Wet says:—"A Boer without his horse is only half a man." Substitute mounted rifleman for Boer and soldier for man, and we have the position expressed as far as the mounted rifleman is concerned. The combination of mobility and fire must be accepted as a fundamental principle, and a keen tactical insight alone will justify its violation on very rare occasions. Principles have been violated in war by masters of the art at times, not only without disaster, but with success, but for "*le bon général ordinaire*" principles are the best guide. It should be always borne in mind by every mounted rifleman that to lose mobility merely reduces him as an agent of harm to his foe to the level of an indifferent infantryman, and by that loss he sacrifices his special advantage.

(b) The type of man for the ranks should be as intelligent as possible. Reconnaissance, always most essential to the mounted rifleman, becomes vital when hostile cavalry enters into the calculation. Frontier police work is an excellent school for training the intelligence. The policeman is constantly faced with situations where a careful exercise of the judgment is imperative, and, provided that a military test is imposed on an increasing scale for promotion, as is the case in the Cape Mounted Riflemen, the colonial military policeman should be an example of the mounted rifleman at his best. Good mounted riflemen are in any circumstances a thoroughly effective military implement, and it is to be hoped that, in the case of all partially

trained mounted troops—the qualification is used to distinguish the auxiliary from the all-time soldier—such as the yeomanry of Great Britain or the citizen forces of the Oversea Dominions, common sense will prevail over misplaced enthusiasm and will prevent the formation of indifferent cavalry, which, like amateur artillery, is a danger and annoyance to everyone except the enemy. Whatever value may be granted to the *arme blanche* in shock action, it will be conceded that such value cannot be attained excepting by Regular cavalry with men and horses continuously under training to work together in large bodies. For citizen mounted troops, trained only for a short time in each year, every day devoted to the use of the *arme blanche* is a day wasted to their proper instruction as mounted riflemen, for even if every youth is a good horseman and fair rifle shot when he joins the ranks, the time available is all too short to teach him to use the mobility of the horseman to develop rifle fire tactically to the best advantage. The mounted rifleman should be light—say, 150 lbs. in weight—not tall, for as a rule a man above the height of 5 feet 9 inches is apt to be cumbersome for his work, and, most important, he should be nimble and very active.

(c) The type of horse should be practically the equivalent of the man. Activity, strength, and small size are all desirable. The horsemastership of Colonial units in South Africa in 1899–1902 left much, very much, to be desired. On the other hand, the horse which needs the careful feeding and attention of the average cavalry remount is of little use, in South Africa at all events. A happy mean between carelessness and pampering should be the aim in treating the horse of the mounted rifleman, and the animal is deprived of a great deal of its value and mobility if it cannot make grazing take the place of the more generous diet of the cavalry horse to an appreciable extent. That the horse of a mounted rifleman should be led without any difficulty must be insisted upon. It should merely require control and direction. It should follow when led as a matter of course, and any animal showing the semblance of difficulty in this respect in a mounted rifle unit should be rigidly cast. It should stand perfectly quiet when a rush back occurs to mount. I have noticed in Regular cavalry regiments marked confusion and noise when remounting hurriedly after dismounted action. This was not due to bad discipline, but to the fact that the horses, no less than the men, require acquaintance with such a situation. Rapid mounting and dismounting is essential—slowness or confusion means loss of mobility—and the horses do their full share when they are not flurried. Fire from the saddle (which I shall mention later) calls for the training of the horse to its delivery.

(d) Reconnaissance will be allowed to be essential. Reconnaissance will be good and effective as the reconnoitring troops are bold, as the result of well-grounded self-confidence, and as those responsible for

direction and command possess good general military knowledge. This knowledge is only gained to the desirable extent by men who, with a special bent, improve their natural aptitude by study. In *The Duties of the General Staff*, Von Schellendorff writes:—"The power of forming an opinion from extended observations may be given by Nature to a few specially gifted individuals, but the majority can only acquire the desired faculty by constant study and practice." In order that this special knowledge may be disseminated as widely as possible as stiff a test in reconnaissance duties as may be found practicable should be imposed as a condition of promotion to non-commissioned rank in mounted rifle units. It is, of course, to be understood that all officers should be critically tested in the same respect. Grave responsibility will often face the non-commissioned officer on reconnaissance, and no effort should be omitted to prepare him for it.

It is most important to distinguish between reconnaissance and scouting. Scouting is only one of the details of reconnaissance. Though the value of reconnaissance has been increasingly recognized, it is doubtful if its specialist nature is emphasized sufficiently. In an age of manuals a suggestion that yet another should be produced is likely to receive some measure of condemnation; but it seems that reconnaissance which must be undertaken to gain information, "the foundation of all our ideas and actions," calls for more than reference in the text book of each arm, and the preparation of a manual of reconnaissance devoted solely to that subject for the use of N.C.O's. of mounted units, would tend at once to lay stress on the great importance of the duty and provide for systematically teaching it on recognized lines.

At present a system of specialist scouts exists in the British Army. It is, of course, well known that the scouting of the Regular mounted troops in South Africa some 10 years ago was, as a rule, indifferent, and the specialist system has admittedly improved scouting in the British Army to a striking extent. Has it not, however, served its purpose?

I have no hesitation in expressing the opinion that for mounted riflemen it is vicious. Every mounted rifleman should be a scout. That Rifleman Jones will be a better scout than Rifleman Smith is just as probable as that Smith will be a marksman and Jones a second-class shot, but that each should regard himself as a scout must be insisted upon. In war specialist scouts will rapidly disappear as casualties in the first few weeks, and their places will be taken by men who have not been taught one of the most important duties of a mounted soldier. Let specialisation be in reconnaissance, and by the non-commissioned and higher ranks, and let scouting be taught as thoroughly as possible to all the rank and file, even though the general efficiency in this branch be less than that attained by a few selected

men who probably would be in their graves or in the hospital shortly after taking the field.

(e) The principles of musketry are common to all troops armed with the rifle, and it is only desired to refer to fire effect as it specially concerns mounted riflemen. Firing from the saddle is a form of delivering fire which seems to have received less attention than its potential value merits. Fire from the saddle was delivered by the South African Republican troops in the war of 10 years ago always with moral, and sometimes with appreciable material, effect. That the latter was not more generally the case was probably due to the fact that the action was on impulse and not the outcome of careful previous practice, and, apart from any moral effect, it does not seem unreasonable to claim that, with proper training, fire from the saddle would become a very valuable method of offence or defence. In *Cavalry in Peace and War*, General von Bernhardt writes :—" Mounted the cavalry knows only the charge and has no defensive power." May not fire from the saddle remedy this disadvantage to some extent ? A race for a fire position, sometimes on parallel courses, is an experience within the recollection of many mounted riflemen who fought in South Africa. It is surely easy to conceive what an advantage might be gathered by that force which in such circumstances was able to direct fire from the saddle on its opponents without slackening speed. The extrication of a rear-guard or the protection of led horses on the move also suggest themselves as occasions when such fire might relieve very awkward pressure. The moral effect—a weighty consideration in war—of such fire will not be gainsaid by those who have been subjected to it, and in view of the fact that it has been proved that practice brings a marked degree of precision, the material possibilities should be most carefully investigated by experiment.

The use of the revolver in the ranks is a matter on which there are different opinions. Personally, seeing that the revolver or the effective use of it calls for great expertness and cool judgment, I hold the view strongly that it should not be in the hands of the rank and file. It is, however, fair to state that this opinion is not shared by several officers of my own service, whose opinions are entitled to the greatest respect. It is interesting to observe in the *Cavalry Journal* for October, 1911, that "the majority of American cavalry officers favour the abolition of the pistol for the men in the ranks."

The full fire effect of mounted riflemen is developed NOT by pushing every rifle into the firing line, but as the result of surprising the enemy, or reaching a strong fire position, or both, by a full use of mobility. It cannot be too strongly urged that it is mobility which must make up for the loss of fire power caused by such demands—for example, as that for the normal absence of a fourth of the rifles with the led horses. Mounted riflemen, by the very nature of their employment, will come at a moment of great excitement upon situations where

they will be assailed by the temptation to develop the strongest possible fire, regardless of other considerations. It is then that the sound leader will not allow the chance of improving a "coup" interfere with the maintenance of his mobility, which, in a suddenly changed situation, may become vital to his safety. And this brings us to the highly important question of the led horses.

(f) On the subject of the management of the led horses in action many views are expressed, but, as is always the case, difficulties decrease if we accept a sound guiding principle. If what I have endeavoured to establish be agreed to as a principle—namely, that the maintenance of mobility, except when it is obviously impossible, must be recognized as vital in all circumstances—the question of the led horses is generally easy of solution.

General von Bernhardi, who goes into the question with far more thoroughness than any other writer, so far as my experience goes, writes in *Cavalry in Peace and War*:—"In defence the horses will, generally, be left quite immobile."

That it may be necessary when on the defensive to leave the horses immobile—i.e., without enough men to lead them—is apparent, but it seems to me unwise to state that it will *generally* be the case. For the resumption of the offensive alone, a contingency which should influence all defensive action, the mobility of the led horses is an all-important condition. It may be unavoidable to keep the horses immobile in the defence of a permanent position from which no withdrawal is contemplated in any circumstances, but that a defensive attitude will, as a rule, involve immobility of the led horses is a supposition at variance with the true tactical employment of mounted riflemen.

Again, writing of regaining mobility after an attack has been carried out, we read:—"Where led horses can be moved this is easy, but where they are immobile, as will generally be the case where the full force has to be put into the fight, there will be loss of time unless a reserve has been left to bring them up." The point is whether the "full force" of mounted riflemen in a firing line is normally practically every rifle in the ranks, or whether the said "full force"—applying to the expression what is to be taken as its technical meaning—should not be regarded as the number of rifles available after the mobility of the led horses has been provided for. I hold the view that the "full force" should always be understood to mean the second condition of those last indicated, and that the led horses of mounted riflemen should never be left immobile unless such a step is unavoidable, in which event the rectification of an altogether false position at the earliest possible moment should be the pressing concern of the commander.

Again, we read:—"The desire to render the led horses mobile should not be allowed to lead to the undertaking of a dismounted

action with insufficient numbers." I would prefer to substitute the following:—"An action where led horses become immobile should never be undertaken by mounted riflemen unless circumstances render the course plainly unavoidable, and then the regaining of the lost mobility should receive the constant attention of the commander."

The following rules seem to apply:—

(1) The commander of mounted riflemen in action should never forget that mobility (derived from good horsemanship) is all that gives his troops any advantage not possessed by infantry.

(2) The full maintenance of this mobility should be as much his concern as the direction and control of the fire fight, and the led horses should be as close to their riders as their safety will allow. Their position in relation to the firing line should change as the tactical situation changes, and their advance or retirement should take place in close connection with the progress of the fight. The led horses should not be brought up, as is too often the case, because the commander, engrossed in the combat, has suddenly thought of them.

(3) There should be visual communication, whenever it is possible to ensure it, between the commander and those in charge of the led horses.

(4) Any situation which compels the commander to abandon direct communication with the normal strength allotted to the led horses should be met by dropping an escort and insisting upon a sharp and constant look out.

(5) A beaten force of mounted riflemen, dismounted for action, which, in order to develop what, after all, is relatively a slightly increased fire effect, has allowed its led horses to become immobile, should be annihilated by a resolute foe, and the loss of all the horses is merely a question of a very short time.

That keen tactical insight may justify departure from these or any other rules is, of course, to be allowed, but it is the ordinary man for whose guidance tactical principles are essential, and departure from well-proved methods brings punishment as well as occasional brilliant success.

THE "CHARGE" OF MOUNTED RIFLEMEN.

If we hold the opinion that a mounted charge in the usual acceptance of the word—namely, a rapid advance in mass with the object of inflicting damage by physical contact at its conclusion—should be sternly discountenanced in the case of mounted riflemen, it is advisable to examine some instances of what has been called the "Boer charge," with the object of determining exactly what it is. The use of the word "charge" in this connection appears to be unwise and misleading, assuming that the definition given above is correct.

The following are the best instances of this form of attack. It

was often employed in smaller numbers and in a less definite shape :—

At Geduld, on the 22nd March, 1901, under the command of Generals de la Rey and Kemp, 400 mounted men charged down on an extended line of Imperial Light Horse, and though they merely fired from the saddle at the retiring troops, the episode is interesting as the first marked use of the manœuvre.

It was rapidly developed, however, and at Vlakkfontein, three months later, under General Kemp, 500 mounted men under cover of the smoke of a veldt fire, which was blown into the faces of a rear-guard of the British column, overwhelmed the rear-guard, captured the two guns accompanying it and the ridge which it was occupying, and inflicted very heavy loss by *fire effect from the saddle and from the ground while leading their horses*. Among the rear-guard, in addition to a company of infantry, were 230 Imperial Yeomanry, mainly composed of recruits.

On the 17th September, 1901, at Blood River Poort, 300 mounted infantry, extended and engaged to their front, were caught in flank, which was reached by a charge across the front from left to right, and rolled up from right to left by *fire delivered dismounted*; 500 men under General Botha delivered the attack.

At Bakenlaagte, on the 30th October, 1901, under General Botha a similar rapid advance in close order was made by 800 or 900 mounted men, who, after engulfing two small infantry detachments in their course, practically annihilated a rear-guard of rather less than 200 men and captured a ridge by *fire delivered at close range dismounted*. The massing and advance were effected under cover of mist driven into the faces of the rear-guard by wind.

On the 25th February, 1902, at Yzer Spruit, 1,200 mounted men under Generals de la Rey and Kemp advanced in similar fashion on a convoy escorted by about 600 men and captured the whole convoy, which had become hopelessly entangled by the breakdown of the leading wagon in a drift, using *fire from the saddle*.

All the above instances are records of signal successes. Let us turn to a failure.

At Roodeval, on the 11th April, 1902, General Kemp being in command, 800 mounted men were launched in close order three to four deep against 100 mounted infantry, apparently in ignorance of the fact that two columns, 3,000 strong in all, were close up. The latter effected a hasty deployment to the threatened flank, and the hostile mass, after being subjected to the fire of 1,500 rifles and six guns for several minutes while moving at a comparatively slow pace, retired with a loss of 50 killed and 30 wounded.

From the above examples we gather the following facts :—

(1) Successes were achieved against smaller numbers, rear-guards or disorganized troops.

(2) Surprise, owing to cover furnished by rain, mist, or smoke, or to indifferent reconnaissance, was a feature of every successful attack against troops in position.

(3) The damage was invariably effected by fire, sometimes from the saddle.

(4) The troops who achieved the successes were seasoned warriors—these tactics were evolved late in the war—and finished horsemen.

(5) When the advance was undertaken without a definite objective in the shape of a position from which effective close range fire could be delivered it was barren of result, and damage as the result of physical contact does not enter into the question.

We are also, I think, justified in stating that this form of tactics is wrongly designated as a charge. It is an advance at a rapid pace in close order, with the troops well in hand to gain a fire position whence decisive result may be obtained by fire at close range. The principle of closing troops during an advance whenever it is possible is generally recognized as sound and necessary, and the proper use of the rapid close order advance, of which the above are instances, is merely the practical expression of the fundamental principle on which we have insisted earlier—namely, the full use of mobility and fire effect.

THE COMBINATION OF CAVALRY AND MOUNTED RIFLEMEN.

The necessity for careful combination and not the alternate use of shock and fire action does not seem to be sufficiently appreciated. If cavalry is to achieve result, effective combination of the two methods is essential. This combination will never result as long as cavalymen regard the rifle as a menace to the cavalry spirit, and it is idle to deny that cavalymen, as a whole, are far more prone to regard the rifle as a necessary evil, than a means whereby their chance of successful shock action may be increased. This attitude is none the less real, because they admit that a certain proficiency in the use of the rifle is to be desired.

General von Bernhardt writes :—" I do not think that this passing mention—*i.e.*, in the German Regulations—of the two methods of fighting sufficiently emphasizes the matter. After due reflection over all the circumstances appertaining to the question, I am, on the other hand, firmly convinced that the mutual relationship between the fight on foot and on horseback will give the modern cavalry combat its peculiar character. This relationship will always have to be reckoned with, and all tactical considerations must be guided by it."

How, in view of the strong antagonism to the rifle which exists in the mind of the cavalryman, jealous to preserve the spirit of shock, is the latitude to be granted to the firearm which is necessary for the " mutual relationship ? " It would seem at least desirable that more than 15 pages out of 316, as is now the case, should be devoted to

dismounted service in Cavalry Training. One ventures with diffidence to express opinions as to the special organization of other arms, but appreciating the difficulties which are peculiar to training mounted riflemen to their own work, and bearing in mind the difficulty of combining the dual rôle of cavalryman and rifleman to which I have endeavoured to give expression, I am driven to the conclusion that, until a cavalry leader is accustomed to work, as matter of course, with a certain proportion of highly-trained mounted riflemen as an integral portion of his command, the dismounted fire action of cavalry must fall short of the efficiency which it might well attain. Would not the inclusion in each cavalry regiment of a squadron of mounted riflemen, who under no pretext were allowed *armes blanches*, accustom the cavalry officer constantly to use the two methods in close and effective combination, furnish a high standard of rifle shooting and dismounted fire action, and go far to remove the hostility of the cavalryman to the rifle, from which it is difficult to withhold sympathy, but which is a serious obstacle to its proper use in regiments of mounted soldiers trained to the charge?

For those who are not regular cavalrymen, with horses and men continuously under training, all idea of shock action with an *arme blanche* should be rigidly excluded, and every available day of tactical training should be devoted to the attainment of the best development of fire action, bearing in mind the mobility of mounted riflemen who are good horsemen suitably mounted.

VI.

IRISH HORSES AND THE ARMY.

By BRIGADIER-GENERAL E. A. FANSHAWE, C.R.A.,
5th Division.

IT will be generally acknowledged that Ireland is one of the best horse-breeding countries in the world. In view of the increasing difficulty in supplying horses for the Army, it would be well to use this national asset to the utmost, which is assuredly not done at present. Why is this, and how can the Army get better value? The reason why is because the foreigner carries off many suitable remounts, either before they reach the age at which our own officers will buy, or because he gives a better price, which he can sometimes afford to do by dispensing with the dealer or middleman. In some districts farmers will suggest a "corner," and say that if they sell direct to remount officers, or private individuals, the dealers will not buy from them any more. Another, and the chief reason, is because the breeding of horses is carried on in such a happy-go-lucky casual way, for which, though in keeping with their nature, the Irish farmers are not altogether responsible, for many are poor and seldom get more than a few miles from their farms. They should be encouraged with more State assistance.

The horse is supposed to like a dry and warm climate. Now the Irish climate certainly cannot be called dry, but limestone dries quickly, and the water does not stand on the fields in the way that it does on clay soils in England, and horses can generally get dry lying and warm places behind banks and hedges. The soft rain, which is good for complexions, keeps a horse's skin healthy and loose; a good skin and a good digestion go hand-in-hand.

It must not be thought that the whole of Ireland is suitable for breeding horses; there are parts, such as about Skerries, which produce excellent potatoes, but in which the best of mares can only produce a weedy youngster, whereas the same mare moved into Meath will breed a grand foal. The limestone districts are the best, and there are large tracts of these across the Middle and South of Ireland. It is true that some of the best four and five-year olds are found in the North, but in most cases they have been bought in

the South by the more businesslike Northerners, and more systematically trained and cared for. Connemara breeds a hardy sort, mostly ponies and small horses, often dun in colour; they and their produce may be met in other parts, and are sure to be good wear-and-tear animals. The horse described as "Up to 14 stone (really only 13), fast, and likely to win a steeplechase," is largely found in Kildare and Meath and parts of Carlow. Cork and Wexford, especially that part known as the Barony Forth, are responsible for many of the good old-fashioned sort, with plenty of substance, and really equal to 14 stone.

The Army requires both riding and draught horses. Mechanical transport will in future do the work that the heavier draught horse has done hitherto; he never was bought in Ireland to any extent. The riding horse, the cavalry remount, should approximate to a small edition, 15·1 to 15·3 hands high, of the weight-carrying hunter, 15·3 to 16·2, which can carry 14 to 15 stone in the Shires. This latter horse may be said to be the aim of many breeders of half-breeds; plenty of stamina, good sloping shoulders, short strong back and loins, deep well-sprung ribs, strong arms and gaskins, good bone, sound feet, and straight action. For the draught horse we can do with an animal more suited to a provincial pack than to the Shires, rather less quality, and more carriagey shoulders; but now that breast harness is used, there cannot be the same objection as heretofore to the long well-laid-back sloping shoulders; they are always an asset over rough ground. Whilst on the subject of shoulders, it may be remarked that the high knifey wither should have no place in the Army, and is seldom seen there now.

Many farmers attempt to breed the high-class weight-carrying hunter to sell as a "long tail" in a fair for from £60 to £100, or for half as much again when three parts trained; if they succeed it pays well, but the numbers of failures are out of all proportion to the successes; and, taking into consideration some complete losses, which are bound to occur, a four-year old which makes £40 or less cannot pay if any value is put upon the grass which he has spoilt or eaten. The cost of rearing horses has gone up with the advance of the times; few three-year olds now earn their keep at the plough—a good school for manners at the risk of shoulder-slips—and the more expensive veterinary surgeon is now called in where formerly the farrier advised and treated. The cause of many failures is unsuitable brood mares; a big mare is not what is wanted, but a square, blocky-shaped, sound mare with plenty of room to carry a foal. There are also many undesirable stallions standing in the country; they must be sound for breeding purposes and have straight action and good bone. Good and bad stallions leave their mark in different districts. Lurgan hocks were once well known where now the strong hocks of "Red Prince II" are common. "Lapcock" in Roscommon,

“Delight” and “Gay Reveller” in Westmeath all did good work, and, of course, “Ascetic” in Meath; but there are also grandly bred horses which leave undesirable marks, such as toes turned in or out and crooked legs, and undoubtedly music runs in families.

Some like big sires, but it is by no means necessary that they should be very big. Not many years ago at the Dublin Horse Show one of the two judges of thoroughbred stock was unable to attend, and the other had the task of judging a large class of stallions, suitable to get weight-carrying hunters, all by himself. He was carefully looking over Mr. Pallin’s “Broxton,” a neat Ayrshire horse with perhaps not perfect shoulders, but well able to use them. The referee, a great authority on horseflesh, happened to be at the side of the ring, and remarked that the judge would tire his eye before he completed his big task, and that it was useless wasting time over such a small Araby looking horse for the purpose of getting weight carriers. But in the next enclosure, in another ring, at the same time, one of “Broxton’s” stock, bred near Kilcullen in Kildare, was winning first prize in the weight-carrying class. To get size and substance good land is necessary, and the mare must be well done when in foal as well as when suckling her foal; once foals are born, there must be no bad setbacks; they must be under a watchful eye; they deserve it as much as cattle and sheep. It is a pity to wean them too early, and when first weaned they require extra care. A well-known old stud groom used to say that no one knew so exactly when it was required, or could mix a hot drink so well as the dam. Once weaned, foals are more liable to the troubles of worms and vermin, and without over pampering them they must have dry, warm lying with plenty of fresh air and sufficient good food. It is best to accustom them to eat crushed oats and bran and to learn to drink before they leave their dams. Their feet must be watched; some land causes gravel to work into the feet more than other; even fields close together vary, and generally it will be found that where sheep are lame, horses’ feet go wrong, but no common germ is supposed to exist. Many horses are ruined through want of attention to this, and get odd feet and faulty action, and later, when work begins, uneven feet are doubtless responsible for splints and ringbones. Then, again, castration and strangles may throw them back, and kicks and sprains want watching for, and treatment.

However, those that succeed are marked down by the buyers of the big dealers, and command a ready sale at a remunerative price far beyond that of the remount officer; the supply of them is not equal to the demand. Government buyers are offered the misfits, doubtful shoulders, not well grown, crooked legs, and not up to weight, though the cavalry troop horse is asked to carry for many hours a heavy enough load. The Army has, also, to put up with many horses that came into the world without great ambitions, the property

of small farmers, who, owning a mare, think it part of her duty, whatever her shape, to breed a foal, and they use the nearest and cheapest horse, irrespective of his other qualifications. However, in justice to the Irishman, who is a horsey man, it must be acknowledged that he will select wisely when a selection is possible. The pity is that in this fine horse-breeding country where numbers of foals are bred yearly, so many of them are wasters and are bound to be so; all should have the chance of turning out useful servants to the country.

Some have recommended Government stud farms in Ireland, but this plan has never met with the approval of anyone up in the subject; no doubt some good remounts would be produced, but at an exorbitant price like the old "stud breds" in India. A brood mare requires at least 10 acres or rather more, young horses considerably less; the same acreage will also take some cattle and sheep to clean it and prevent it from becoming horse sick, and with a good grazier in charge they would do most of the rent paying; but for every 30 or 40 acres the Army could only count on one remount annually. It is better to leave the breeding to private enterprise, but to assist it in every possible way. The cheapest horse to buy in the country is the well-bred yearling or two-year old. He frequently can be had for little more than the subscription paid for his sire. The Army has many mares; there are more mares than geldings in the cavalry, because being smaller they do not attract the eye of the hunter buyer, but they are capable of breeding sons as big as their brothers. On certain conditions, not too stiff, any trustworthy farmer in a good breeding district should be able to obtain from the Government a mare suitable for breeding. Some sacrifice will be required from the Army; it must let likely mares go at 12 or 13 years of age, and in the autumn, so that they can do some ploughing and be softened down before they are put to the horse in the spring. Farmers will hardly think it worth while to attempt to breed from a 15 or 16-year old corn-fed mare; they might take such a one for work, but in many cases there would be no foal next year. Some officers will be willing enough to part with mares over 12 years, as they think they are unfit for mobilization at that age; but, as a matter of fact, trained horses up to 15 and even 16 years of age are far better campaigners than untrained remounts of four or five years. The mares should be on loan only to farmers, and subject to inspection and withdrawal if necessary. Three-year old fillies might, after purchase, be used on the same conditions to breed foals; there is an idea that it leaves them soft afterwards, and no doubt for a time they are so; they require a year after breeding before they are fit for hard work, but as five-year olds they should be able to take their places in the ranks; their growth may be slightly checked—no great disadvantage for a troop horse.

Having found the mares, suitable stallions must be within reach, and here again there is a good deal of difference of opinion, many thinking that the right sort cannot be had except at a big price. What is wanted is a sound, symmetrical horse with good stamina: 15·3 is quite tall enough; they are not wanted for breeding winners, though it is certainly a recommendation that the horse has stood three or four seasons in training. These horses can be bought at very reasonable figures, and should be placed through the country; in most districts farmers and publicans can be found who would be quite ready to take them. Government mares should have first call on these horses at a nominal fee, the horses would be limited to a fixed number of mares, and a list of them must be kept for inspection. Government would reserve option of purchase of produce at certain fixed prices as yearlings, two-year olds, three-year olds, and four-year olds; in some cases it would be wise to purchase early that the young animal might be better done, and for such youngsters some arrangement would have to be made, either by hiring land or paying by the head for their grazing. There is grass which, in a mild winter will carry horses right through. Many young horses winter out with practically no extra feeding, on coarse grass, but they are a year behind those better done in getting into condition and fit for hard work; so, in most places, some hay and 3 to 5 lbs. of corn daily after Christmas are well expended. Three barrels of oats (600 lbs.), at a cost of 30s. to 35s. would be sufficient with 6 cwts. of hay for another £1. Grass in summer would be 12s. to 20s. a month, and in winter less, varying with the district. In Kildare and Meath the charges are high, for the best grass fetches up to £4 10s. an acre for grazing on the 11 months' system. However, few owners would allow horses on such grass. Roughly, the youngsters should be kept for £10 a year or less.

There must, of course, be supervision. When animals are taken for grazing by the head, the herd of the division is responsible; but above him something more is necessary. When troops are within reach, officers interested in horses could be employed; it would bring them into touch with the country people—always useful for acquiring leave to manœuvre, &c. When mounted troops are near, farriers could be used to watch the young horses' feet. In other places where no troops are stationed, some compact might, with mutual advantage, be arranged with the local hunt and the gentlemen in charge of districts of the hunt; they could often reap some advantage in being able to recommend farmers who should receive mares and sires, and in return would watch Government interests. A little of that sort of thing goes a long way in Ireland.

In the event of a farmer succeeding in breeding a high-class valuable horse, he should on the recommendation of the inspecting officer be allowed to sell him privately, or perhaps receive a bigger

price from an officer as a charger. Some encouragement of this sort would be wise, and a 16·1 blood weight-carrier would be almost out of place in the ranks, though he might look well in the lead of a Royal Horse Artillery team.

The old-fashioned light Irish cart mare, which bred so many hardy horses of the sort wanted in the Army, has disappeared from most districts, and her successor—a casual mixture of many strains, hackney, Norman, various cart horse breeds, and thoroughbred of doubtful stamina—is no improvement. So some such scheme as above should be of general benefit to the horse-breeding of the country as well as to the supply of remounts to the Army.

VII.

SOME THOUGHTS ON THE WAR ORGANIZATION OF AN INFANTRY BATTALION.

By A FOOTSOLDIER.

ORGANIZATION is the term used for the subdivision of masses of men into such number of components as will enable the commander to exercise adequate control and direction over the whole, and will ensure that the components can be distributed in whatever manner is most suitable to the circumstances, and can co-operate efficiently with one another. In order to fulfil these conditions it is desirable that the unit should comprise such number of parts—

- (i) As will ensure both flexibility and cohesion in its actions.
- (ii) Will enable the whole to be distributed into two or more groups of unequal as well as of equal size without breaking up the organization of any of the parts.
- (iii) That a commander shall deal directly with such limited number of subordinates that their actions will be under adequate supervision.
- (iv) That subordinates in their various degrees shall similarly control the actions of only a limited number of inferiors.

In the case of a fighting unit it is also necessary that the strictest economy shall be exercised in regard to the numbers detailed to ancillary services, in order that the largest numbers possible may be devoted to fighting.

2. The various parts into which an army is divided have been evolved either by a process of grouping together small bodies with a view to obtaining better tactical or administrative effect, or by subdividing a large body into fractions. The grouping, for instance, was adopted in the case of the feudal levies, when they became too numerous to possess real cohesion and to enable the direct control of the commander to be exercised with efficiency. An example of subdivision is the splitting up of a national force like the Anglo-Saxon fyrd, which as a mass would lack the requisite flexibility, into bands or battalions.

3. So far as infantry organization is concerned it is not easy to trace the reasons for the grouping adopted at various periods of

military history, but apparently the governing factors were that, until quite recently, the battalion was the tactical unit, while as a rule the company was merely an administrative organism.

In England, from the time of the conquest to the reign of Henry VII, infantry were divided into thousands, hundreds, and twenties, squads of 20 men being commanded by officers called vingtners, and the companies or hundreds by centenaries.

Under Henry VIII, however, the grouping of infantry was territorial by companies and shires, to each shire being allowed a standard, while the number of companies under any one standard varied considerably.

In the army of Gustavus Adolphus in the sixteenth century, the battalion of four companies of about 125 men each was the tactical unit, three or more battalions forming a regiment, a grouping used for purposes of administration. On the other hand, a regiment of German Landsknechts of this period might comprise thirty companies or might include ten, while companies also varied in strength.

In Cromwell's new model army a regiment of foot consisted of ten companies of 120 men each. Later the number of companies was increased, being thirteen in the time of James I, one of which was a grenadier company; but the strength of a company fell to about 100.

Under William III the number of companies in a battalion varied from fourteen in the Guards to ten in the Line, while in Marlborough's army the number of companies was ten and the average strength of battalions 950 of all ranks. At this juncture the battalion seems to have been a tactical and administrative unit, while the company was administrative only, for in battle fire was delivered either by platoons—a platoon being one-sixteenth of a battalion, and the battalion presumably so told off when on parade—or by divisions,¹ that is, groups of two companies.

In the army of Frederick the Great a similar arrangement obtained. The battalion, which was a tactical unit, was for administration divided into five companies of musketeers and one company of grenadiers. The grenadier company was usually detached, and in these circumstances the five companies of musketeers fought in four divisions each of two platoons, the platoon being about 75 strong. Fire was delivered either by battalions or platoons.

4. During the wars of the French revolution the French battalion comprised at first nine, and subsequently eight companies, each of about 100 men. The eight-company battalion included a grenadier and a light company, but these more often than not were detached and formed with companies from other battalions into grenadier and light battalions, so that as a rule only six companies were present on parade.

¹ A few years ago the term grand division was applied to each group of two companies formed for a battalion to march past in column of double companies.

The battalion was the tactical unit, and when consisting of six companies was, for tactical purposes, told off into pelotons, each of one company, apparently after companies had been equalized when on parade. When all eight companies were present the battalion was told off into double companies.

In 1808 each French battalion, except the *depôt* battalions which had four companies, was organized into six companies, one of which was a grenadier or carbineer and another a light company. A company possessed 3 officers, 6 subofficers, 8 corporals, and 123 privates.

At this period the British battalion comprised ten companies, each about 100 strong, and continued nominally of this number for many years, though at times it took the field with only six or eight companies, the others forming a *depôt*.

Since the British battalion possessed, in addition to the battalion commander, two field officers who were not company commanders, these were usually employed when in action to command two wings into which companies were grouped.

In 1812 Prussia carried the policy of decreasing the number of companies in a battalion yet further, when, owing to the paucity of officers available, she re-organized her battalions on a four-company basis, each company consisting of 250 men and being divided into two pelotons. This organization has now been modified to the extent that the company is subdivided into three sections.

5. For almost two centuries, *i.e.*, from about the middle of the seventeenth to the middle of the nineteenth, infantry fire-arms showed no epoch-making improvements, and this may account for the fact that, on the whole, infantry organization and tactics varied comparatively little during this period, though a marked and continuous tendency is observable towards reduction in the number of the subdivisions in the battalion organization.

The rapid improvements in fire-arms, which were a feature of the second half of the nineteenth century, brought in their train great changes in infantry procedure, for extended formations and wide frontages became necessary. Infantry actions consequently became struggles between individuals rather than between masses, and the infantry was successful in which individuals co-operated most efficiently with one another. The cultivation of mutual knowledge and confidence grew, therefore, to be of primary importance, and partly for this reason, partly because the wider the extension or the greater the volume of hostile fire, the smaller will be the unit that during battle can be directed and controlled by one individual, the company became a tactical unit within the battalion, and the section the fire unit. The battalion also came to be handled like a brigade, being brought into action by successive parts not more or less simultaneously as before, and being at the beginning of an action distributed in depth

with the object of retaining flexibility and avoiding undue loss and exposure.

As a result the clumsy system was abandoned under which the administrative organization of a battalion was dissimilar to that required for fighting. This evolution was especially rapid in the Prussian Army, where the increased size of the company naturally endowed it with considerable power of independent action.

6. So far as organization and tactics are concerned the great military nations have almost without exception followed the example of Prussia.

For instance, the number of companies in a French battalion was, after the experience of 1870, reduced from six to four, the large company being organized into two half companies each of two sections.

The change from six to four companies seems to have been prompted by two motives—first, the army in 1873 was largely increased, and units could only be officered by reducing the proportion of officers to other ranks; secondly, the four-company battalion had been successfully used by the victors both in 1866 and in 1870, and had therefore stood the test of experience, proving itself at any rate reasonably well suited to modern tactical requirements.

Speaking generally the same process of evolution was followed in the other Continental armies, for while by 1866 the six-company system had generally replaced the eight-company organization—in Austria the battalion was at this time still told off for battle into two divisions each of two companies, the two companies being subdivided into four pelotons—the European armies were, after 1870, for the most part converted to the four-company organization, Russia being the last to adopt this system.

Two exceptions, however, still exist to this general rule. In France the *Chasseur à pied* battalions possess six companies, because it is said that the requirements of independent action by small bodies—for which these units exist—both in mountain warfare and when on reconnaissance duty, are more readily met under this organization than with the four-company battalion. In the British Army the battalion is organized into eight companies, the number having been reduced in 1876 from ten to eight in order to enable two companies from each battalion to be used for the formation of the brigade *dépôts* constituted in that year. The eight-company organization is also, for tactical purposes, adopted in the Native Army in India, though for administration a double company system obtains, as this is found to be best suited to the special conditions in which the Army is raised and commanded.

At present, then, three battalion organizations, viz., those into four, six, and eight companies, hold the field, all of which will satisfy the condition stated in para. 1 that the battalion must be capable of subdivision into two or more equal or unequal parts. In other

words, the battalion commander is enabled to retain in reserve a larger proportion of his battalion than he utilizes to prepare the attack or for protective purposes, to expend more than he holds in reserve, or to divide his battalion equally. Or, again, he can detach a force suitable for independent action without breaking into the organization of a company.

Of these organizations that into six companies does not, however, demand serious consideration, for its adoption by the British Army would involve changes too radical to be contemplated in the system of maintenance and number of officers and N.C.O's. now approved for the British infantry.

The suitability of the four or eight-company organization need, therefore, only be dealt with.

Regarding the war establishment of a battalion, there is, and for the most part there has always been, practical unanimity in all armies, and it may therefore be accepted that the prevailing establishment of about 1,000 of all ranks satisfies legitimate requirements.

7. Owing, as has been pointed out in para. 5, to improvements in fire-arms, the company during the nineteenth century supplanted the battalion as a tactical unit, but whether the large (four) or small (eight) company organization is best suited to the conditions likely to be encountered in a campaign in a civilized country is a subject on which views differ in a marked degree.

Since both France and Germany, the leading military nations, were primarily influenced towards the large company system by non-tactical considerations, there is also evidently room for divergence of opinion in regard to the question, and this is especially the case because in both countries the voice of criticism against the four-company organization has from time to time been raised.

Before attempting to discuss this question it must be premised that the size of the company and the number of companies which a battalion commander is expected to control and supervise in the confusion of battle are matters of some tactical importance, that is to say that some control and supervision of companies as such will be possible, that companies will, to some extent at least, remain intact, and that until the final phases of the action serious intermingling of units small and great will be the exception not the rule.

If intermixture in the earlier phases of an action is to be the rule, the important factors in infantry organization are not the size and number of companies in a battalion, but the proportion of officers to other ranks, since success will depend on the manner in which individual officers control and lead the men near them, and on the efficiency with which officers co-operate with one another, rather than on the cohesion of the company, section, or other subdivision, and on the way in which these subdivisions aid and support each other.

8. From the point of view of fighting efficiency in war, both large and small company are said by their advocates and detractors to possess certain important advantages and grave drawbacks.

In favour of the large company it has been urged :—

- (i) That a convenient number of units is under the control of the battalion commander who can readily assemble the company leaders when explanation of orders is necessary. An accurate appreciation of his intentions and intelligent execution of his wishes may moreover be expected from the company leaders, who will be men of experience.
- (ii) That the large company is of such size that while able to be controlled efficiently by its commander, it is capable of independent tactical action when required.
- (iii) That a battalion composed of large companies—that is, of fewer components—possesses more cohesion and solidity than one of small companies, and that in battle intermingling of companies is lessened.
- (iv) That the large company is, on the whole, better adapted for detached duties and duties of protection likely to be required in a war in a civilized country than the small company.
- (v) That maintenance is facilitated, for one cooking vehicle can be allotted to each company.
- (vi) That an advantageous decentralization of administrative responsibility is possible within the battalion because the company commanders are all men of experience, while the senior officers of the battalion are endowed with a position and responsibilities suitable to their rank and service.
- (vii) That the large company has successfully passed through the searching ordeal of three great campaigns, viz., 1866, 1870, 1904.

9. The alleged disadvantages of the large company are :—

- (i) Large companies prejudice the power of the commanding officer to control his battalion, and are injurious to co-operation; for once in action, and especially in enclosed areas such as woods, there is stated to be a tendency, owing to the size of their commands, for company commanders to disregard the importance of subordination and co-operation and to undertake independent action.

The same impulses are said to govern the actions of the subalterns commanding groups of 80 to 100 men, who consciously or unconsciously endeavour to escape from the supervision of the company commander.

- (ii) The large company is too big to be controlled and directed adequately by one man when under fire.

- (iii) The long time which must elapse before officers can hope to attain the more or less independent position of company commander acts prejudicially on their characters and efficiency.
- (iv) The battalion possesses but little flexibility, and when reinforcement by or detachment of a force smaller than a company is in question, the organization of a company must be broken up.
- (v) The large company is unsuited for frontier mountain warfare, which is principally an affair of small detachments for purposes of protection.

10. The advantages said to be possessed by the small company organization are, to a great extent, the antithesis of the disadvantages of the large company system, viz. :—

- (i) That the battalion possesses great flexibility, and that when reinforcements and protective detachments are in question companies can be used without subdivision.
- (ii) The smaller size of the companies ensures more efficient leadership and control, especially at night. Mutual confidence is also more easily established between commander and men in a small company.
- (iii) The temptations to independent action are not so great.
- (iv) Small companies are better adapted for frontier warfare, and for certain detached duties in civilized warfare, *e.g.*, reconnaissance.
- (v) The small company with its small subdivisions can take advantage of every particle of cover, and owing to its size and handiness is well suited for gaining ground when under fire.
- (vi) Billeting is facilitated when habitations are scattered, as one company can, for instance, find accommodation in a small farm.
- (vii) The small company proved in South Africa its suitability for modern war.

11. The drawbacks to the small company are stated to be as follows :—

- (i) It is too small to possess the independence required under modern conditions.

A large company, for instance, would be an efficient garrison for a small work, or for a small feature, whereas two small companies, necessarily with less cohesion, would be required for this purpose.

- (ii) A battalion composed of a large number of units has not the solidity of one with a few.
- (iii) A battalion commander cannot efficiently supervise and control a large-number of company leaders when under fire. The actions of the battalion will therefore lack cohesion.

- (iv) Variations in the efficiency of leadership must be greater when a larger number of units, commanded by officers of widely different experience, are concerned. This will tend to produce inequality in leadership, as well as undesirable centralization of power in the commanding officer, who will naturally be unwilling to delegate authority to eight-company commanders, some of whom may be young and inexperienced. The temptation to a young company commander to escape from control will be as great as that to a group commander in a large company. The small company is not an adequate command for a field officer of 24 or 25 years' service.
- (v) A large number of company commanders cannot readily be collected when the issue of orders is in question, nor will an accurate appreciation of the intentions of the battalion commander, and therefore efficient co-operation, be easily assured when so many minds are concerned in the interpretation and execution of the orders.

If the orders are issued through the senior major, and two senior company leaders who may be mounted, they will reach the others at second hand, and will therefore be liable to be misinterpreted.

- (vi) Arrangements for carriage of food are complicated, for it is not possible to allot one cooker to each company.

12. Except as noted, no administrative advantage is gained in war by a battalion organization into large companies.

At present the supplies for the British eight-company battalion—that is, for Headquarters, machine-gun section, and eight companies—are carried in two general service wagons belonging to the supply sections of the train, and the regimental baggage is also carried in two general service wagons of the baggage sections of the train.

None of these vehicles can therefore conveniently be used for the transport of the supplies and baggage of a detachment of less than half the battalion.

For one company detached a special vehicle must be provided. If two companies were detached the loads of two of the train vehicles allotted to the battalion would have to be changed to furnish the companies with transport; for a detachment of three companies, arrangements would be required similar to those for one and two companies.

Under a four-company organization the same difficulties would still exist, for supplies for Headquarters, the machine-gun section, and the four companies would be carried in two general service wagons of the supply sections of the train, and their baggage in two general service wagons belonging to the baggage sections of the train.

Transport for detachments of one or three companies could, therefore, be provided from that allowed to the battalion only by

re-adjustment of the loads of the vehicles ; while for a detachment of less than one company special transport must be provided.

13. In present circumstances the British battalion presents a compromise between the large and small company systems for, owing to the presence of the senior major, it is in reality organized quite as much into two wings as into eight companies, though the position of the major is somewhat anomalous, for he is allowed neither headquarters nor authorized assistants for any functions of command that may fall to his lot.

When in action, for instance, the battalion for practical purposes is divided into two equal or unequal parts, each under a field officer. Of these parts one prepares under the senior major the way for the other, which under the battalion commander supports and completes so far as is possible the task commenced by the first. A similar subdivision also takes place when the battalion, as such, is engaged on the service of protection.

The system possesses both the disadvantages and advantages of a compromise. It must be disadvantageous, for instance, that whilst in theory sole responsibility rests with the commanding officer, as in many circumstances it does actually in practice, in others, as has been noted, responsibility is shared with the senior major. It is, however, advantageous to have hit upon a compromise, the addition of the senior major, which in part obviates some of the drawbacks of the eight-company organization, such as difficulty of control when in action, of securing efficient co-operation, the centralization of power in the commanding officer.

14. The question then arises whether it would not be possible to retain the small company and at the same time, while obviating the drawbacks noted in para. 11, graft on to this organization many of the advantages of the large company system by adding to the battalion another senior major and grouping it, as was usually the tactical custom during the Peninsular War, for tactical and also for certain administrative purposes into two wings. Such arrangement would provide two efficient units each capable of independent action and of being controlled when under fire by one senior officer, and the battalion commander would supervise only two subordinates.

On the other hand, the logical outcome of such division would be delegation of a large portion of the responsibility of the battalion commander to the wing commanders, a somewhat radical change ; while wing commanders would, as a necessary consequence, require headquarters, the battalion headquarters being proportionately reduced. Again, this organization would not meet the requirements stated in para. 1, for the battalion would, without much gain in cohesion, lose in flexibility, since it would be organized only into two equal parts, and should subdivision into a larger number of parts or into two unequal parts become necessary, the organization of one of the wings would be dissolved.

15. Of the three alternative organizations for a battalion which have been considered, viz., the present arrangement of eight companies with a senior major, an expansion of this organization by definite subdivision of the battalion into two wings each under a field officer, and the large company organization, there is not one but possesses serious drawbacks, and so grave is the disadvantage involved in its lack of flexibility, that the wing organization cannot be recommended.

16. In the case of the other organizations the advantages possessed by one seem almost to balance those of the other, and neither is without serious drawbacks. If, for instance, a battalion with the large company organization does undoubtedly possess the greater cohesion inherent in its grouping into four large as against eight small units, and is also, as seems reasonable to suppose, more easily controlled and directed by the battalion commander, it may with equal truth be claimed that the eight-company battalion has greater flexibility, and that the small company will more readily be controlled by its commander when in action, whether by day or night.

The question then remains, and it is a question which must be answered in the affirmative before any change in organization is adopted, whether, so far as organization is concerned, the balance of advantage, if any, likely to be gained in time of war by the adoption of a four in place of the existing eight-company organization is sufficiently pronounced to justify the change ?

VIII.

THE NORMAL ORDER OF MARCH.

By MAJOR F. MAURICE, The Sherwood Foresters.

MAJOR DAVIDSON'S article on "Staff work with a Division on the March," in the last number of *THE ARMY REVIEW*, calls attention to a subject which has been freely discussed on the Continent, but has not yet received with us all the attention which it deserves.

As to Major Davidson's main propositions there can be no two opinions. The advantages of billeting in depth, when a considerable force is marching on one road, as a means of conserving the energies of the troops, of taking full advantage of their marching powers, and of making the most of the resources of the country, are indisputable. It is also, as he says, of the greatest importance that the Staff should be acquainted with the problems involved and have practice in solving them. Some, however, of the detailed arrangements which Major Davidson proposes seem to require further discussion. Of these the chief is the order of march. Briefly, Major Davidson takes the case of a division marching on one road with other divisions on parallel roads on its flanks; he proposes that this division should have a permanent advanced guard and that its main body should march daily in an order to be fixed, for at least a phase of a campaign, in accordance with the local conditions and the nature of the country. In other words, he proposes a normal order of march.

Now attempts have been frequently made in the past to introduce normal formations. If only they were of practical value, they would simplify greatly the art of war and make peace training for battle no more arduous than is practice for a review. The temptation to attempt to solve the problems of war in the quiet of the study by one piece of clear thinking which can be stereotyped, put away, and withdrawn from a pigeon hole when required, has always been great. Unfortunately all such attempts have ended in failure, because the factors of every military problem are so variable, that it passes the wit of man to devise one solution which can be applied to every situation. In these days we hear no more of normal formations in attack and defence, though in less enlightened times they enjoyed a considerable vogue. The question before us now is, are the conditions

under which marches are made so constant, that it is possible to determine, at least for a considerable period, the formation in which a division should march ?

Now marches may be broadly divided into two categories. In the first of these come marches in which a collision with the enemy is possible, in the second marches where a collision with the enemy is so improbable that it need not be considered seriously ; in the one case everything must give way to tactical considerations, in the other the comfort of the troops is of chief importance. It will be convenient to consider these two cases separately in order to see whether a normal formation can be applied satisfactorily to either or to both.

Where contact with the enemy is possible the chief factors which govern the order of march are, that the march must be adequately protected and that the troops must be so placed that they can come into action at the right time and in the order in which they are required. Protection is provided by the advanced guard, the strength of which according to the Field Service Regulations should be proportionate to the strength of the main body, provided the advanced guard is strong enough to carry out its duties. As we are considering the march of a division, a force of uniform size, there is nothing here opposed to the idea of having a normal advanced guard, but when we come to the duties which the advanced guard has to perform, the case for a normal formation is less convincing. The advanced guard has to secure the main body against attack, to obtain information on which the commander may base his plans, and to gain time for him to put his plans into execution. These duties all depend upon variable factors, such as the nature of the country, the action of the enemy, and the commander's intentions. It is obvious that a commander who wishes to be certain of securing the exits of a defile would make some modification in the advanced guard which had previously covered his march through ordinary open country ; hilly country and plains, dense woods and ordinary cultivated land all require different methods and changes in the composition of the protective force. Again, take the case of a commander who having decided on offensive action has been marching with every intention of attacking the enemy wherever met. The situation changes, and he determines to avoid a decisive engagement. Is it not probable that he would like to change the composition of his advanced guard to suit his change of plans ? Still, in spite of these possible contingencies, it may be argued quite reasonably that it is possible to provide a normal advanced guard for a division operating against a European enemy in ordinary country (i.e., excluding mountainous and dense forest districts), which would be capable of dealing for several days with 99 situations out of 100.

It becomes then a question of examining the advantages and disadvantages of a permanent advanced guard from the standpoints of tactical handling, administration, and maintenance.

If the advantages can be shown to be decisively in favour of the normal formation from these points of view, this would be sufficient to outweigh the disadvantage of some want of elasticity.

Major Davidson claims for the normal advanced guard the following advantages :—

- (1) The march is resumed with ease.
- (2) No reference is necessary in operation orders ; an itinerary or march table can be issued.
- (3) There is greater facility in administering the train.
- (4) The commander becomes acquainted with his command.
- (5) The service of protection is more efficiently performed.
- (6) The difficulties involved by taking a new advanced guard from the main body and relegating the old advanced guard to the main body are not experienced.
- (7) The start need not be so early.
- (8) Outposts are thrown out and withdrawn more easily.

He further quotes in his support Von Schellendorf, "Duties of the General Staff," page 359.

I will take the latter point first. The passage in Von Schellendorf is by no means clear in the original, and as the translator of this portion of the book I must plead guilty to having failed to make the English version any clearer. Reading the context, however, it has always seemed to me that Von Schellendorf was speaking in this passage of strong advanced guards pushed some distance ahead of the main body. I do not think it can be disputed that circumstances may arise which will require the formation of such advanced guards for two or three days. They approach in character somewhat to what we call general advanced guards. It is, however, obvious that the German authority does not mean that such a formation should be employed normally in the situation with which Major Davidson deals, that of a division marching on one road with other divisions on its flanks, for he states explicitly, on page 361, that he considers an advanced guard of 1 battalion about 1,000 yards in front of the main body, in addition to the reconnoitring cavalry, sufficient for an Army Corps, the German unit corresponding to our division, if it is marching to meet an enemy with other Army Corps on its flanks. He cannot mean that this battalion should not be relieved daily, otherwise it would have to find the outposts every night and the men would get no sleep at all.

Now, to take Major Davidson's list of advantages of the normal advanced guard. I do not propose to dispute (2) and (4). (2) is a very minor easement of Staff duties which does not affect either tactical efficiency or the comfort of the troops. (4) is an undoubted advantage ; the command is always one of the weaknesses of temporary formations. (1), (5), (7) and (8) may be considered together. Let me begin at once by saying that there seems to be no reason why the

personnel of a considerable part of an advanced guard should, in ordinary conditions, be changed daily. The bulk of the divisional mounted troops will almost invariably form part of the advanced guard. Again, there is no valid reason for changing the artillery unless the divisional commander wishes for some reason to alter the proportion of guns to rifles. The same applies to the engineers and administrative services. With the infantry, however, the case is different. Let us take Major Davidson's march. His division is marching on the Petersfield-Alton-Odiham-Reading road. We will suppose that the division on the right is marching on the Midhurst-Bentley-Fleet-Yateley-Wokingham road, that on the left on the New Alresford-Basingstoke-Tadley-Aldermaston road. This is as close as the divisions could march if they are not to be crowded unduly in quarters. The main body of the centre division halts in Major Davidson's scheme with its head at Mattingley; we will suppose the others halt with their heads at Fleet Station and Tadley respectively. The outposts of the centre division would not extend over a less front than from Eversley Cross inclusive to the Great Western Railway at Stratfield Mortimer. Indeed, seeing that the outer divisions have to secure the flanks, the centre division may be said fairly to have come off lightly with this extent of front to watch and secure. The distance is 8 miles in a bee line. Now the divisional commander will normally want to start the main body soon after daylight. Before the main body begins its march the advanced guard commander will have to get those of his troops which are not on outposts into such a position as will allow him to withdraw the outposts in safety; these troops will then have a long wait while the outposts are closing upon the rear of the advanced guard. The whole operation must be completed by the time the main body is to begin its march, and therefore much of it will have to be carried out in the dark. Most of the outpost troops will have had no breakfast. Even if the communications work like clockwork the closing of the outposts in the dark must be a very slow business.

Now let us look at the alternative arrangement. A body of infantry sufficiently strong to relieve the advanced guard infantry has been quartered at the head of No. 1 area. It marches from Mattingley $1\frac{1}{2}$ hours before the head of the main body is due to start, and joins the remainder of the advanced guard at, say, Swallowfield. A similar body of infantry starts at the same time from the head of No. 2 area, and marches to Mattingley to replace the infantry of the new advanced guard at the head of the main body. A gap equal in length to that of the old advanced guard infantry in column of route is left at the head of No. 2 group.

When the main body of the advanced guard has passed through the outpost line the outposts begin to close on Riseley Common, and when the whole of No. 1 group of the main body has passed through

that place at 10 a.m., they, and the remainder of the infantry of the old advanced guard, take their places at the head of No. 2 group. The outposts will thus have ample time to close in daylight and to get their breakfasts before marching.

Now, comparing the two systems, which is likely to lead to the most efficient performance of protective duties and the greater comfort of the troops? Can infantry which has to start marching for a number of days in succession with a long wait in the dark, to spend every third night on outposts and to march every third morning without breakfast, be expected to perform efficiently the arduous duties of an advanced guard, when contact with the enemy is obtained?

It is true that the arrangement which I suggest causes the greater part of the infantry to march earlier than would be the case under Major Davidson's arrangement, but it would not cause the infantry, which has no horses to look after, to be up earlier than the mounted troops, nor does it increase the length of the march by a yard, while the infantry reaches its quarters at a correspondingly earlier hour. It therefore appears that, by relieving the infantry of the advanced guard daily, such fatigue as must be borne is more evenly distributed than when the advanced guard is permanent. The even distribution of fatigue must always be an object at which the Staff should aim.

With regard to the method of relieving the infantry of the advanced guard here proposed, there seems to be little doubt that the time when changes in the order of march can be made with the least friction is before the hour fixed for the head of the main body to leave the starting point. The road by which the march is to be made is then clear, and movements can be carried out without difficulty.

To go back to Major Davidson's advantages of the normal advanced guard, I maintain with regard to—

- (1) That the resumption of the march by the advanced guard is much more difficult.
- (5) That owing to the strain on the advanced guard infantry the protective duties will be less efficiently performed.
- (6) That the difficulties of relieving the advanced guard infantry do not exist.
- (7) That the start as regards the advanced guard has to be much earlier.
- (8) That the withdrawal of the outposts is greatly complicated.

With regard to No. (3) of the advantages, there does not appear to be any serious difficulty in administering the train when the infantry of the advanced guard is relieved. When refilling takes place by day, *i.e.*, after the troops have marched off, all that is necessary is that the commander of the train should know the order in which the troops are marching, before the trains leave the refilling points. It is then a matter of indifference to him whether the order of march has been re-arranged since the previous day or not. When refilling takes place

over night complications may arise, if the order of march is modified materially after the trains have refilled ; but such a state of affairs would usually arise only when the tactical situation had undergone some sudden change. In these circumstances the only golden rule is to be prepared for the unexpected ; attempts to provide for every situation beforehand will only create the confusion which they are intended to avoid.

The balance of argument is then decidedly against a permanent advanced guard. Occasions may, of course, arise when a strong advanced guard has to be pushed some distance to the front, and it may then have to be constituted for two or three days' march, but this should be the exception. Normally the infantry should be relieved daily, the other arms being changed in accordance with the changes in the situation and the intention of the divisional commander.

The case for a permanent order of march in the main body, when contact with the enemy is possible, is even less convincing than the case for a permanent advanced guard. The number of permutations and combinations which may be required to meet changes in the situation is more numerous in the case of the larger body than the smaller. The number of guns required near the head of the column must vary with the situation and the country. The position of the engineers may vary for the same reason ; the pontoons may be required one day and not the next ; it may be necessary to be ready to make an infantry detachment at any moment to a flank. The most convincing argument of all against any rigid formation of marching groups is, however, that the billeting capacity of the country must vary with each march, and must govern the grouping of the troops in quarters. It would be very bad staff work to crowd troops into one area and leave another partially occupied merely because the billeting capacity did not suit the march grouping. It would doubtless make the allotment of billeting areas and administration in quarters easier if the staff had in their minds some such normal grouping as Major Davidson proposes, and disturbed it as little as is compatible with the proper execution of the commander's plans and with making the fullest use of the available accommodation. When contact with the enemy is possible normal formations should not go further than this.

In the case of marches of the second category—that is to say, when contact with the enemy is highly probable—the case for normal march formations is much stronger. Such marches would not be of frequent occurrence. The most probable case is a march from a port of disembarkation or from a place of detrainment into an area of concentration which is being protected by other troops. A march of this kind in Europe would rarely exceed three days in duration, as when more than 50 miles had to be covered part of the force at least would almost certainly move by rail. Let us suppose, however, that a division is marching for three days on one road under such

conditions. Here the first consideration is the comfort of the troops, and the most important consideration from that point of view is that units and formations should be kept intact. An advanced guard will be necessary, as the situation may change during the march, but the objections to a permanent advanced guard do not apply with the same force. In the first place, the protective duties required of the infantry will not in all probability be very exacting; in the second place, the advanced guard infantry can, without running the risk of committing the divisional commander in a way of which he would not approve, be made sufficiently strong to provide adequate reliefs. It must be understood, however, that if any undue strain is thrown on the advanced guard infantry it can still be relieved from the main body in the manner indicated above. As regards the main body, there will probably be no change in the situation during the march, and therefore no modification of the commander's plans. The only facts which will affect the grouping will be the billeting accommodation. I therefore suggest that under these conditions a suitable grouping for the march from Portsmouth to Reading would be as follows:—

2 companies Mounted Infantry (less 1 section)					
1 brigade Royal Field Artillery	..	..	
1 field company Royal Engineers	..	..	
1 Infantry brigade	..	..	..	..	Advanced guard group.
1 Field Ambulance	..	..	..	..
Billeting parties..	..	..	..	..
Divisional Headquarters	..	..	..	..
1 section Mounted Infantry	..	..	..	..
1 Infantry brigade	..	..	..	..	No. 1 group.
Headquarters, Royal Engineers	..	..	..	..
1 field company Royal Engineers	..	..	..	..
1 Field Ambulance	..	..	..	..
1 Infantry brigade	..	..	..	..	No. 2 group.
Heavy battery and ammunition column	..	..	..	..
1 Field Ambulance	..	..	..	..
Baggage section of train.					
Headquarters, Royal Field Artillery	..	..	..	..	No. 3 group.
2 Field Artillery brigades	..	..	..	..
1 Field Artillery (Howitzer) brigade	..	..	..	..
Supply sections of trains.					
Divisional ammunition column.					

It would probably be necessary to alter this grouping for billeting purposes, particularly in the case of No. 3 group, which contains the greater part of the mounted troops, but it can rarely be necessary to alter the order of march. By the above arrangement every unit marches complete except one section of mounted infantry, which finds the orderlies for Divisional Headquarters. The infantry precede the greater part of the mounted troops, the bulk of whom march

ALDERSHOT DISTRICT



Printed at the Ordnance Survey Office, Southampton, 1912.

Scale of Two Miles to One Inch

1 1/2 2 3 4 Miles

together. Thus the infantry has the use of the road before it is cut up by the mass of wheels and horses.

From a grouping point of view, the above arrangement might often be improved by allotting no artillery to the advanced guard, and letting the whole of the Field Artillery march together. No field ambulance marches with No. 3 group, but Field Artillery are capable of transporting any men who may become sick on the march, and a portion of the field ambulance allotted to No. 2 group can always be detached for the use of the artillery in quarters, if required.

Take Major Davidson's march from Alton to Mattingley with this grouping. The head of No. 1 group would march at 8 a.m.; No. 2 group would follow No. 1 at a mile distance to allow of each group making its short halts without interfering with the other. The baggage sections of the train would follow No. 2 group at the same distance. These groups would reach their billeting areas at 12.25 p.m. No. 3 group, consisting wholly of Field Artillery, need not start till 9.40 a.m., and would then reach its billeting area about South Wanborough at the same time (12.25 p.m.), if it moved at trot and walk. It would find its baggage sections in its billets on arrival. The proposed grouping of the supply sections of the train is suitable for day refilling. If refilling has to take place overnight, the most convenient arrangement would be to distribute the supply sections of the train, and let them march with the groups which they feed, or at any rate to allow the supply sections which feed the advanced guard to follow it immediately, those of the main body marching in rear of No. 2 group. It must depend on the distance from railhead, upon the state of the roads, and upon the nature of the country, whether refilling takes place overnight or by day. When contact with the enemy is possible, it will further depend upon the commander's wishes. If an engagement is possible most commanders would desire that the troops should march off in the morning with as much food as possible. Here there is another variable factor which may upset a normal order of march.

The grouping of troops at convenient distances, with the bulk of the mounted troops together, is probably the most suitable arrangement for a march when tactical considerations are of no account. It would probably be made normal, on many occasions, for the short time that such a march would last, but it would hardly be wise to count too much upon this. Even when the enemy is at a distance normal formations are but a shaky prop; when he is near they are a broken reed.

We must all be grateful to Major Davidson for introducing this important subject, of which, alas, we have very little practical experience. My only object in continuing the discussion is, as I know Major Davidson's to be, to help in the solution of an important problem.

IX.

OUR FAILINGS IN "THE ASSAULT."

By BRIGADIER-GENERAL F. C. CARTER, C.B., late Commanding
16th Infantry Brigade.

"An enemy can seldom be driven from a good position by fire alone. . . . The actual decision is brought about by the assault."—Infantry Training, IV, 122-3.

THERE are two items in our Infantry Training that I think require a great deal more consideration, more practice, and more methodical and drill-like teaching. These are :

(1) The Assault.

(2) Outposts.

This paper only deals with the first.

From my own personal experience during the last decade, as a Commanding Officer, a Colonel on the Staff, and an Infantry Brigadier ; from what I have seen and read of our manœuvres, and from what has been told me by various officers on home and foreign service, the impressions left on my mind regarding "the assault" are as follows :—

- (a) Nowadays, at our peace manœuvres, too often the day's operations cease before the assault has been driven home, the position occupied, the enemy pursued with heavy fire, and the assaulting troops re-formed to meet a counter-attack or to pursue the enemy. Over and over again have I heard the "standfast" followed by the "dismiss" sound when the assaulting troops have but barely started on their forward charge, and still oftener before any movement to assault has been initiated. This defect in our system of training was specially brought to notice by the Army Council in the Memorandum on Army Training, 1908, but I fear it wants rubbing in still more.
- (b) The assaulting troops at the decisive moment and point are, as a rule, far too weak to ensure success ; often a mere straggling and scattered body of men, scarcely one to the yard, frequently less.

- (c) The final fire position of the attack is, more often than not, taken up at far too great a distance from the enemy's trenches, resulting at times in a futile endeavour to get tired men to "charge" in one rush from 300 to 500 yards across bad country, generally uphill. The result, as seen at our manœuvres, is that the final bayonet charge on the enemy is delivered by an absurdly thin and irregular formation of "brave men" and fast runners, and not "in lines, possibly many deep" (Infantry Training, Appendix I, 1 (2)), or in "the greatest possible strength" (Field Service Regulations, I, 103 (3)) as it should be. The residue are generally scattered some hundreds of yards in rear, puffing and blowing in their endeavours to keep up, while some having come to a slow walk or dead halt, are practically useless for the rôle they were detailed for.

The result of this parody of perfection would, in war, mean defeat. Such an assault could never hope to overcome a determined defence, although in numbers such defence might be far inferior to the attacking force. Moreover, the first men to arrive at the enemy's position, the survivors of the fittest from among those who have been shot down or are fagged out, would, owing to the excessive pace and length of the "charge," be so fatigued as to be quite incapable of using their bayonets with effect at the critical moment.

In connection with this point it is well to note that this very fault was called attention to in the Memorandum on Army Training, 1910.

- (d) The absence of an overwhelming covering fire just before and whilst the actual assault is taking place. This covering fire should, I am of opinion, be delivered not only by artillery from a flank or overhead, and by machine guns and long range rifle fire from a flank, but also by close range fire from infantry on both flanks of the assaulting troops.

It must be recognized that machine gun and long range rifle fire must practically cease during the last 100 yards of the assault, whilst the overhead fire of the supporting artillery becomes less and less "covering" fire, in that its shells will be bursting (if the gunners do their work properly) farther and farther beyond and not over the enemy's trenches.

Any close and overwhelming covering fire during the assault is only possible from infantry at close range on either flank of the assaulting troops, and this—partly due, I think, to the interpretation of Field Service Regulations 106 (5), Clause 2—is generally neglected.

- (e) We are somewhat prone, at our peace manœuvres, to lose sight of the fact that modern battles last not hours but days; that they comprise a succession of deployments for attack, attacks, advances under cover of darkness, entrenching at night for guns and infantry, assaults (often at various points along the attacking line and not always simultaneous), repulsing of counter-attacks, reorganizations and the renewal of operations *de novo* against the next position occupied by the enemy; the actual assaults being carried out probably by fresh troops as each new tactical stage of the battle is reached.

It is the evolving of order from seeming chaos after a successful assault, and still more so after a repulse, that requires "drill" in the first place and practice in the field afterwards. We do not get a sufficiency of either.

The non-insistence (often) of continued hostilities, by day and night, for, at least, the last 60 hours of our Army Manœuvres, does away to a great extent with the realities of the battlefield.

During the last 25 years the training of our infantry as regards attack and assault has passed through many evolutions. It is not so long since that we had one stereotyped "attack formation," the unsuitability of which for all terrains was only too apparent to those whose fighting took them to the rugged mountain marches of the North-West Frontiers or to the dense jungles and swamps of the North-Eastern Frontiers of India. It was on these campaigns, more than on hundreds of field days, that the Army in India learnt how to adapt principles to peculiarities.

Then came a period when various kinds of attack and assault formations, to suit, it was hoped, every kind of warfare and theatre of war, were tried under the ægis of official sanction.

This was soon followed by the official veto of any kind of "attack formation." The immediate result was an appalling incubation of what Prince Kraft called "Turks," hatched in an atmosphere of ill-considered imagination. Every general and commanding officer had some particular fad and scheme of his own for getting over the ground during the attack and evolving an assault as a climax. This was not a success. Units were constantly changing commanders and stations, and as constantly learning new "forms of attack" which were not spoken of as such, but were such nevertheless; and from a multitude of councillors there emerged "confusion worse confounded."

Then followed Combined Training, one of the best tactical books of its day, with its excellent orders for the assault. (1902 Edition, Part I, Section 19, and 1905 Edition, Chapter VI, Section 121.)

This was followed by a still better publication, namely, our present Field Service Regulations. In spite of this, however, it is my opinion that the actual "assault," as carried out at our present-day manœuvres, is not yet of the kind that will ensure success in the day of battle. We fail, in the points noted above, because we do not sufficiently recognize that we must be prepared to face enormous losses over these last 200 yards. If we intend to "get in," our assaulting line or lines must be "as thick as peas" when launched from the final fire position; must be thoroughly supported by close rifle fire from neighbouring troops as well as by artillery fire during the final stage; must meet the enemy in a fairly compact body, not in a "pepper-box formation" of exhausted stragglers. Each man must be sufficiently fresh to use his bayonet with vigour, even if this necessitates the lying down, two or three times, of the assaulting body, in order to regain breath and strength, when crossing the last 200 or 300 yards.

What we want, I think, is more *practice* in the "drill" of the actual assault and the adapting of it to various terrains, mountains, hills, woods, plains, hedgerow fields, &c., and more attention on the part of both staff and regimental officers to the principles laid down in our Field Service Regulations and to the Memoranda on Army Training issued each year by the Army Council.

In warfare, "principles" are necessary, and they must be adhered to. Where we fail is in practising and adapting these principles.

Marshal Thomas Bugeaud wrote: "When attempts are made to lay down principles in war, a large number of officers at once solve the problem by saying that everything depends on circumstances. As the wind blows, so must the sails be set; but if the proper sail and the proper amount of sail suitable to each wind is not known beforehand, how can sail be made at all?" We do not, I think, wish to follow the French Regulations, where definite rules in attack and assault are avoided and an extraordinary latitude allowed to officers, nor do we wish to spend as much time as do the Russians in practising close formations, but we do want to appreciate the main principles of a vigorous assault; to *drill* our men into them, and teach our officers to adapt them to every possible circumstance and locality.

In no matter has the British infantryman improved more in the last decade than in bayonet charging and in bayonet fighting. We nullify, however, to a great extent, the advantages of this improvement by taking all the "go" out of him, in impossibly long and sprinting "charges," before the moment for putting this training into practice arrives.

I do not think that as regards the initial, intermediate, and penultimate phases of the attack we have been retrogressive, but

from all I have seen, read, and heard of our manoeuvres for the last few years, both at home and abroad, I am of opinion that in 1903 and 1904 we were carrying out the assault more successfully than we are now.

In considering the whole of this question, it is interesting to compare the various methods adopted on the Continent and in Japan with our own Regulations on the subject. From such a comparison it appears that we have little or nothing to learn as regards the attack generally, except, perhaps, as to the necessary density of the assaulting troops.

Firstly, as regards our own Regulations: It is clearly laid down (Infantry Training, 128 (12)) that the firing line must be gradually built up to the requisite strength to overcome the fire of the defence and must gradually make progress during the struggle until a position is reached from which the heaviest close fire can be brought to bear upon the enemy and whence the assault can be delivered.

This final fire position should be as near the enemy as possible. Infantry Training, 130 (1), gives 200 yards as a guide. During the building up of this *dense* firing line and the preparation for the assault—a time-taking procedure which we are very apt to hurry unduly at our manoeuvres—the strongest supporting fire from artillery, machine guns, and long range infantry fire must be brought to bear on the enemy. (Field Service Regulations, 105 (4), (5), (6), 106 (3), and Infantry Training, 128 (6), (7), (8), (9).)

The impulse for the assault may either come from “any commander in the firing line” or from the Supreme Commander in rear. This is thoroughly recognized in the Regulations of Continental and Japanese Armies as well as in our own. Experience in war teaches us that it is so.

In the former case it is generally due to the weakening of the enemy’s fire, to movements of portions of their troops to the rear, and to demoralization, which results in their not waiting to cross bayonets with the attackers. The decision is then generally brought about by the mere “advance to the assault” (Infantry Training, 122 (3), Clause 2).

This I call the “lesser type” of assault as distinct from the “greater type” when the enemy holds his ground and the attacking commander obtains the decision by thrusting in, for the assault, a large general reserve at the critical time and point. (Field Service Regulations, 102 (4), 106 (1) (5), Clause 2.)

In the “lesser type” of assault, “any commander in the firing line” who sees the psychological moment has arrived, even though reinforcements are far in rear (Infantry Training, 128 (13)), must seize it at once, and all other commanders must co-operate (Field Service Regulations, 106 (5)), while opportunities may occur

at other points of the battlefield and must also be seized at once. (Field Service Regulations, 106 (6).)

Herein, however, undoubtedly lies a danger at the most critical moment; a danger that may be brought about by either "lack of initiative" or "untimely impulsiveness" on the part of "any commander in the firing line," for "premature or spasmodic attempts to assault are almost certain to fail." (Infantry Training, 128 (12), Clause 3.) We have frequently experienced faults of both kinds in peace and in war. This, however, is not to be wondered at. The decision at such a nerve-straining moment requires genius of a high order.

This danger, however, must be faced. This is a point on which any hard and fast ruling would be not only impossible but disastrous. When these chances of war come, we can only pray that we may have the right man in the right place.

It is, however, with regard to the "greater type" of assault that I wish to write more particularly, namely, when the impulse comes from the rear; when the commander of the whole attacking force, keeping in close touch with the course of events on the battlefield, chooses his own moment and point for striking and throws in his general reserve (Field Service Regulations, 102 (4)), which as it reaches the firing line, carries it forward with it in the assault. (Field Service Regulations, 106 (5), Clause 2.) In this case the enemy, although greatly demoralized by overwhelming fire, is still holding his defences and prepared to oppose with bayonet and counter-charges what he has failed to check with fire. (Infantry Training, Appendix I, 1 (2).) It is imperative that this assault be delivered by "the largest possible force." (Field Service Regulations, 106 (1), and Infantry Training, 128 (12), Clause 3.) Generally "in lines possibly many deep." (Infantry Training, Appendix I, 1 (2).)

We are told, in Field Service Regulations, 102 (4), that "this method will usually be most suited to the circumstances of our Army, and has been chiefly considered" in framing the sections dealing with "the attack." Nevertheless it is in this method that we have chiefly failed both in peace and war. As regards the former we see it year by year at our peace manoeuvres, and as to the latter, the War in South Africa afforded plentiful examples. Our assaults, as a rule, lack cohesion and density. This should not be. Field Service Regulations, 104 (3), clearly lays down that "the latest experience goes to show that a smaller force than from three to five men per yard on the front on which the decisive attack (and assault) is to be delivered will rarely prove sufficient." In plain English, this means that, allowing for casualties during the attack, we should have a reinforced dense and steady line or lines of men with a depth of at least two to four men per yard ready to cross bayonets with the enemy.

After the assault, presuming it to have been successful, there is much action to be taken as regards putting the position in a state of defence, pursuit, &c. Should it fail, as fail it will at times, there is the still more difficult task of covering the repulse and reorganizing the scattered remnants of brave men. Both these most important adjuncts to the assault are, with us, more often dispensed with than practised at manœuvres.

Our Field Service Regulations and Infantry Training are very clear as to the procedure to be adopted throughout the attack in all its phases. Do we carry out this procedure correctly at our peace manœuvres? I think not, and in no portion of the long drawn-out battle do we fail more than in the assault.

Some of the causes of this failure I will allude to later on.

As regards the French Regulations: *Règlements sur les Manœuvres de l'Infanterie*, 1909, paragraph 263, describes at first the necessity of moving up to the selected place of assembly as carefully concealed as possible from the enemy. In any case the advance to this spot must be vigorous and rapid. It then goes on as follows: "Echeloned in depth and in the least vulnerable and most easily controlled formations, the assaulting troops move courageously forward with fixed bayonets; they join on to the troops already in the firing lines. These latter redouble their fire and give renewed energy to their attacks, always seeking to gain ground. When the commander considers that the moment to assault has arrived, he sounds the charge. Then the greatest chance of success lies in rapidity of movement. Everyone must have only one thought, namely, to gain ground and go steadily on till the critical moment arrives, when, at the orders of the officers, all ranks will hurl themselves on to the enemy shouting "*En avant!*"

Throughout the French Regulations the utmost freedom is allowed to commanders. There is no attempt anywhere to lay down definite rules for any formations for attack or defence. In no other army in Europe is such great latitude allowed. It appears to be the keynote of the French Regulations to rely on the individual judgment of officers in the interpretation of and in the carrying out of the very general lines laid down. There is no mention of covering fire, length of assaults, or any definite orders anywhere, but (and this is of special interest in this paper) a Circular was issued last year which laid great stress on having great depth in the formation of the assaulting troops. A curious point to be noticed is that on arrival at the place of assembly, and before the troops detailed for the assault reach the firing line, they fix bayonets.

As regards the German Regulations: *Infantry Drill Regulations*, 1906, which are still in force, lay down in paragraphs 343 to 351 the method of assault. The following is a free translation:—

Paragraph 343. When the firing line has succeeded in working up to the hostile position, and the enemy is sufficiently shaken, then the assault is made.

(NOTE.—At peace manœuvres the assault is commenced at about 160 yards distance from the enemy, unless the ground does not permit of it or the umpires rule otherwise.)

Paragraph 344. It depends on circumstances as to whether the impulse for assault comes from the front line or the rear.

Paragraph 345. If the commander of the front line thinks that the time has come, he must not wait, but must venture an assault. The troops in rear must advance at once, irrespective of loss and by the shortest way.

Paragraph 346. If any of the attacking troops from a flank or commanding position can, during the assault, still fire effectively, they must continue firing up to the last moment. (Note this covering fire from the "attacking" troops on a flank with reference to my remarks further on as to our Field Service Regulations, 106 (5), Clause 2, and Infantry Training, 122 (3), Clause 3.)

Paragraph 347. If the order for assault comes from the rear, "fix bayonets" is given by signal and is to be obeyed by all troops available for the assault. On this signal men of the skirmishing line fire with the greatest rapidity. Portions of the firing line which happen to be behind must work forward as quickly as possible. All reinforcements in rear are to hasten forward as quickly as possible.

Paragraph 348. As soon as the front line is ready to assault, the buglers sound, the drums beat, and the troops hurl themselves on the enemy. It is a point of honour with the men of the front line not to allow themselves to be overtaken by the reinforcing troops till they have at least gained the hostile position. Immediately before reaching the enemy the rifle is brought to the charge, "Hurrah" is shouted, and the position won!

Paragraph 349. Although the assault should be made as simultaneous as possible, this does not mean that the position can be entered absolutely at the same moment at every point. Such simultaneousness is unnecessary and it might lead to troops waiting for each other. This would lessen the force of the attack. All troops, once started, must move on continuously.

Paragraph 350. When the assault is successful and the enemy repulsed, it is a mistake to occupy the position gained with more rifles than can be effectively employed. Troops in rear should be halted in time and otherwise employed.

Their commanders will often have to act on their own initiative.

Paragraph 351. Stereotyped procedure in the conduct of attack is forbidden.

Great depth is insisted on in a big assault.

In manœuvres the Germans seem to be very fond of small isolated frontal assaults, which would apparently end in disaster to the troops concerned. In connection with this it is interesting to note our own Infantry Training, 128 (12), Clause 3, where it is laid down that "it is of the highest importance that assaults should be delivered simultaneously and by the largest possible force."

In a report on some German Manœuvres, the following is of interest. "In both cases the assault was sounded at about 200 yards from the position, and all ranks, including all bodies in rear, then pressed forward simultaneously to the assault *in quick time*. Two or three halts to fire were made, and then the charge was delivered in double time at about 60 yards from the enemy and continued to within a few yards of him." (Note this with regard to remarks in this paper regarding the usual length and pace of our assaults at manœuvres.)

The Austrian Regulations are very similar to those of Germany. As regards Russia, the following extract from a report is of interest: "The final fire position is built up to a density of about one man per yard at a distance of from 50 to 100 yards from the enemy. . . . Russian Regulations lay down that while the signal for the assault may come from the commander in rear, in practice it will usually be given by an officer in the firing line. There was a want of co-operation in the assaults; sections of the firing line ran forward unsupported by the advance or fire of other sections. Troops cheer as they charge, and when they are about 20 yards distant the defending infantry rises and runs forward to meet them. The opposing lines run through each other till halted by umpires." The last remarks are, I think, most interesting. It is teaching the soldier to practise in peace what he should carry out in war, viz., not to wait in a stationary line, but meet the enemy's charge by a counter-charge, the advantage being always with the impetus of the attacker. Appendix I of our Infantry Training, 1 (2), shows that we are now instructing on these lines.

The Japanese Provisional Regulations of 1907 have now been replaced by the Infantry Regulations, 1909, which differ very considerably from the former. These Regulations insist on the establishment of a *dense* firing line at close ranges.

As regards the density of the assaulting troops no figures are given, the only point being that it must be "as great as possible." As regards the length of the charge, it is not laid down, but the following extract from a report throws some light on the matter: "Within 500 yards from the objective, rushes at top speed were

made by alternate sections to within 300 yards; at this distance bayonets were fixed and the advance was continued by rushes of alternate companies, the supports having been absorbed. The charge began at 80 yards from the position, the enemy being pursued for a distance of 300 yards." A later Report than this, however, states that the assault is now generally delivered at about 200 yards from the enemy's position.

From the above notes on the Regulations of our own and foreign armies it is clear that our Field Service Regulations in no way fall short of foreign standards; on the contrary, they rather lead than follow nowadays.

Where we "fail in the assault" and in other details of battle practice is in the *carrying out* of these Regulations in the spirit in which they were conceived. The chief causes of this failure are, I think, to be found :—

- (i) In the fact that the fetish of "over-extension," which, after the early disasters of the South African War, was set up as a God in the Temple of Mars, still claims some devotees among our senior officers;
- (ii) In misapplied theoretical study and too little practical experience in the command of troops in some of our senior staff officers;
- (iii) In the unrealistic haste and hustling of our field days;
- (iv) In the endeavours to take up war frontages with "squeezed lemon" battalions;
- (v) In defective appreciation of the depth necessary for assaulting troops;
- (vi) In premature and unnecessarily long attack orders;
- (vii) In the action and inaction of umpires;
- (viii) In some of the criticisms at conferences;
- (ix) And lastly, but by no means leastly, in the disease known as "*cacoethes scribendi*."

I will try and give some concrete examples of what I mean :—

- (a) Every spring and autumn lengthy and verbose paraphrases of our Field Service Regulations are issued from several of the Command, Divisional, and Brigade Headquarters. These only tend to confuse and exasperate commanding and other officers, who are already overdosed with clerical work. I have seen no less than 14 of these paraphrases, called Hints on Training, mostly of two printed foolscap pages, all issued in one year from a Divisional General Staff Office. Some of the paragraphs are not quite in keeping with Field Service Regulations. I have also been shown eight close printed foolscap pages of Remarks on Collective Training issued above the signature of a Brigadier-General on the General Staff. In all this mass of reading there

were but 13 lines that dealt with the various rôles of the General Reserve, and the fact of its being ever used for the "greater type" of assault as laid down in Field Service Regulations, 102 (4), is absolutely ignored. I could find nothing in the above that was not much more clearly expressed in our own Regulations. I should like to see all such productions (except the Annual Memoranda on Army Training, as issued by the Army Council) strictly forbidden. If G.O.C's., Brigadiers, and Commanding Officers cannot succeed in training the troops under their command in accordance with the excellent Regulations they already have, it would be better to remove them.

- (b) Infantry commanding officers are slack, in some cases, about practising the last stages of the attack during battalion training. Some leave it out altogether, while others make a pretence of a general reserve for the assault with flags, bandsmen, or a ridiculously thin line of men. The assault of the whole battalion (as a general reserve) should be practised during battalion training, and not left for the few opportunities at brigade and divisional training.

There seems to be a kind of idea prevalent that, after the manner of play-actors, we can leave out the "tag" at rehearsals and "it will come all right on the night." These optimists forget, however, that play-actors never leave out a single position, movement, or gesticulation. We soldiers should do the same at "rehearsals," merely leaving out the real "tag," which in our case is the actual fixing of bayonets, until the day when, rehearsals being over, the drama is enacted in grim earnest.

- (c) I have known premature and lengthy attack orders issued before any reliable information has been received from the advanced guard commander as to the enemy's main position, resulting in premature deployment and premature plans for assault which never materialized. This, I am afraid, often happens because the advanced guard gets hung up by "three men and a boy," and will not push through and get the necessary information. The weary waiting G.O.C. then remarks, "Oh, we shall never finish the show at this rate," and issues his orders on insufficient or inaccurate data.
- (d) I have seen frontages allotted in the attack which worked out barely at one man for every three yards on the general front and a depth of less than two men per yard on the front where the decisive attack and assault was to take place. I admit that Training and Manœuvre Regulations, 63 (3), before they were revised might have misled some

people. There is, however, no excuse for such frontages now, and moreover the Memorandum on Army Training, 1909, makes this very clear.

- (e) I have seen an attacking force of a (peace) division, spread over an uneven line of frontage of some two miles, more or less simultaneously cease fire at about 500 yards from the enemy's position, and charge forward absolutely uncovered by any rifle fire whatever and by but very spasmodic and doubtful artillery fire from overhead.
- (f) I have seen a *continuous* "charge" ordered or evolved at from 400 to 500 yards from the enemy's position, resulting in the commiserable fiasco already alluded to.
- (g) I have seen a colonel on the General Staff, as umpire (but before the present Umpire Regulations came into force), stop the rush forward of a splendidly built up firing line, reinforced by the first line (wave) of the general reserve, to something like 2.5 men per yard, because he considered that "such a dense mass of men could not face modern rifle fire at 200 yards!"
- (h) I have heard a senior officer of the General Staff, at a conference, find fault with the depth of troops on the flank to be assaulted, it being barely four men per yard all told, from the firing line to the last line (wave) of the general reserve. He stated that the frontage given to the troops on that part of the field should have been more extended in order to avoid overcrowding on the assaulting front! I do not think this particular episode can ever have come to the notice of the Training Branch of the General Staff at the War Office, but there must have been other offenders of the same opinion, for it was soothing a few months later to read the remarks in paragraph 3 (iii), Clause 2, of the Memorandum on Army Training, 1909.
- (k) I have heard a senior officer on the General Staff, at a conference, find fault with a fine fire position built up at 180 yards from the enemy, under good field cover, and remark that a far better position, with less chance of heavy casualties, could have been found at about 600 yards from the hostile trenches. He concluded his criticisms by remarking, "We must train our men to charge continuously over 600 yards of rough ground. The Germans and Japanese do it and so must we."

Personally I do not believe in this myth of the Teutonic and Yellow races any more than they do, if their Regulations on the subject are any guide.

From my own experience as a Company Commander, a Commanding Officer, a Staff Officer, and a Brigadier, I

have no faith in "charging" *continuously* for more than 100 yards. I prefer 50. All war-trained nations can do a steady "double" for 600 yards, and I much doubt if any of them would hold their own with our men across country for a far longer distance, but this is a very different thing to "charging" over bad ground, after a tiring day and under a hail of bullets, and being expected to use their bayonets with vigour at the end.

I do not wish in any way to cavil at our Staff officers as a whole (half my own service has been spent on the Staff), but I think that in the matter of leading troops in the final phases of the attack, regimental officers who have grown up in the art of handling men in the field and teaching fire effect, are sometimes better judges than Staff officers, who have had little or no experience as company officers or battalion commanders. After all, it is our system that is at fault, whereby so many Staff officers come to the top of the tree without having had for years and years any experience in handling men.

There is one point in our Field Service Regulations that I wish to criticize, and that is Clause 2 of Chapter VII, 106 (5). From this it appears that the *whole* firing line is to be carried forward with the assaulting troops at the critical moment. In Infantry Training IV, 122 (3), Clause 3, it would appear to be recognized that "the attackers must cease fire while assaulting, and the enemy is *free* to develop his full fire power," and again, in Appendix I, 1 (2), lines 11 and 12, it is pointed out that assaults "can rarely be well supported by covering fire while charging."

Thus, during the most critical period of the attack, namely, the assault over the last 200 yards, our troops are practically without real covering fire of any sort, as that of the artillery (the range having been lengthened), will no longer be actually *hitting* the first line of defence, while machine guns and long range infantry fire upon the defenders must cease as the whole line nears the enemy.

I am inclined to think that this sudden cessation of rifle fire all along the line of attack gives the enemy, not only on the front where the main assault takes place, but all along his line of defence, an unduly favourable opportunity of opening a deadly fire on the advancing masses, while no bullets come his way to disconcert his aim and make him keep his head down, and shells are bursting at safer and safer distances to his rear.

I am well aware that the rising radical School of Gunners in our Army maintain that until such time as our field guns carry high explosive shell they could, by lengthening of fuses until they are practically firing percussion shell, keep up, with perfect safety to our troops, a steady overhead fire on the enemy's trenches up to the last moment of the assault. In this manner, I believe, the French

intend to make use of their high explosive and dense smoke shells.

Personally, however, although I have no wish to see our artillery *cease* fire for a moment at this period, and although I have the greatest admiration for our progressive, if somewhat "over-gallicized" gunners, I do not think that this theory of perfection of accuracy—as regards observation, ranging, laying, and fuse setting—is, except in the rarest cases, suitable for practice in the stress and turmoil of this crisis in the battle. It might, I fear, lead to "want of confidence in the artillery" in the early stages of the war and a possible moral *débâcle* should our infantry find themselves heavily shelled by their own guns when victory was almost in their grasp.

For this reason I am glad to see that Chapter VII, Section 155, paragraph 6, of our new Field Artillery Training (provisional issue) lays down that "it is only when the distance between the combatants is great or the slope very steep that the artillery can hope to do more good than harm by continuing its fire on the enemy's trenches after the infantry has actually started to assault, while, owing to the difficulty of satisfactory observation, the danger of its action being prejudicial increases with the length of the range. As a rule, therefore, the range of the artillery should be increased as soon as the infantry starts to assault."

This temporary digression from the main thesis of this paper is merely to show that close support, by actual fire on to the enemy in their trenches, cannot be expected from the artillery at this crucial period of the fight, and the point I wish to lay particular stress on is the "absence of *close* support to the assaulting troops."

Here I find I am but repeating a comment made in paragraph 11, VII, of the Memorandum on Army Training, 1910, as issued by the Army Council.

This *close* support, however, when the assaulting troops are crossing the last hundred yards or so, can only be given with telling effect by the infantry at close range on either flank of the assaulting troops. Such covering fire is rendered impossible if the provisions of Field Service Regulations, as quoted above, are carried out to the letter, and moreover the failing mentioned in the above-quoted Memorandum appears to be more or less recognized in our Infantry Training (122 (3), Clause 3, and Appendix I, 1 (2)) as a necessary evil.

In this point, and in this point only, as regards the "greater type" of assault (for this clause in Field Service Regulations alludes only to this and not to the "lesser type"), I would like to see our Regulations modified.

I would suggest that Field Service Regulations VII, 106 (5) Clause 2, be altered to read as follows:—

"All available reinforcements will be thrown into the fight, and as they reach the firing line will carry *that portion of*

it, which is to their immediate front, with them and rush the position. The remainder of the firing line will keep up a continuous rapid fire on the defenders, joining the assaulting troops the moment they have obtained a footing in the position or covering their retirement in case of repulse."

The conclusion that I have come to is that "our failings in the assault" are at the present time prevalent in varying degrees throughout the Army, and are, moreover, serious enough to snatch victory from our grasp when almost gained. These "failings" can, I consider, be rectified by more careful training, more preliminary "drill" in assaults, more constant practice at manœuvres, a greater insistence on the density of assaulting troops, and a slight alteration in the wording of our Field Service Regulations.

We must harden our hearts, as our forefathers did of old, to the heavy losses that will occur, remembering that no tired stragglers will win victory for us at that moment of moments, but a steady advance of strong, disciplined, and brave men, prepared to suffer losses, to use their bayonets with effect and to snatch victory from the jaws of death, like Wordsworth's "Happy Warrior,"

"Who, doomed to go in company with pain,
And fear and bloodshed, miserable train!
Turns his necessity to glorious gain."

Captain (now Colonel) F. N. Maude, R.E., as far back as 1888, summed up the situation very clearly in his Gold Medal Essay of the United Service Institution of India, and his remarks written a quarter of a century ago are, I think, except as regards the now obsolete "artillery duel," as relevant to-day as they were when we who are now "grey-beards" were boys. "Train our men," he wrote, "above the fear of death. Prepare the way by artillery fire, and then with a dense line of skirmishers in front, hurl battalion after battalion in line upon the decisive point. If our men will only stand half the losses their fathers bore, I prophesy boldly that no troops in Europe will stand before them. Immortality should be the soldier's highest reward, but he must seek it in the spirit, and not in the flesh."

X.

A PLEA FOR EDUCATION IN INDIA.

By MAJOR-GENERAL J. L. KEIR, C.B.

THE pace of modern life makes constant change inevitable. If we are to progress we must always be on the *qui vive* and ready to adapt ourselves to our altered surroundings. A system suitable for to-day may be out of date to-morrow.

With rapid course, and ever-increasing volume, the flood of awakened intellect, which has its source in the school and whose chief affluent is the cheap literature of to-day, is making its force felt in nearly every quarter of the globe. The fertilising influence will, however, vary in proportion to its reception. If channels be dug to lead it in the right direction and the soil over which it is to flow be carefully prepared and stimulated, the efforts of the husbandman will be rewarded a hundredfold. Under inattention or neglect it may form a useless, perchance even an unhealthy, morass.

One of our military ideals is that the Army should return to the State the citizen entrusted to its care bodily and mentally equipped for the struggle for existence which awaits him on his return to civil life.

Seventy-five thousand of the fighting manhood of the nation represents India's share in this ideal. Is this very serious responsibility sufficiently recognised?

We read and hear much of the education of the native and Eurasian. I propose in as few words as possible to say something about the education of the British soldier in India.

While in command of a brigade in that country I was much surprised to find that, in spite of the advantages now offered to soldiers who educate themselves, the average number of men without certificates of education of any kind stood as high as 20 per cent. of the strength of the infantry—that is to say, that out of a strength of 1,000, 200 are uncertificated. I say surprised, because I considered that the result of the strides which have been and are being made at home in the matter of education would have had a more decided influence on the Army in India than appears to be the case.

Some may, perhaps, say that these results are quite satisfactory, that obedience rather than education is what is required from a soldier, that too much education is a dangerous thing, and so forth. I am not prepared to enter upon discussions on these points, as all I wish to do is to prove that if we are really anxious that the education of the British soldier in India should progress, we can, with a very small effort and with no further financial demands on the State, achieve our object.

The mentality of the rank and file is very different from what it was 20 or 30 years ago. A glance at the books in the men's libraries in India shows us how little the State has recognised this advance or attempted to cultivate the growth in mental capacity. Take the case of the young soldier who has received a fair education, has been accustomed to purchase his daily paper and is fond of reading in his spare time. He is sent to India and joins his battalion at some warm station in the month of March. His first two weeks are spent in segregation camp, where papers are unheard of. He inquires about the library, and is probably told that these books are not allowed to be taken into camp. He nevertheless has a look at them and finds some rather heavy works on travel and religion of the early Victorian period, and a few very old novels so worn that many pages are obscured by dirt, some torn and missing. As an encouragement for the future he is warned that should he have the misfortune to lose one of these precious works he will have the privilege of paying six or seven times its market value towards its replacement.

The institute he is, perhaps, forbidden to enter, so he falls back on devouring a penny dreadful he has borrowed from a friend, containing stories in which bad English is blended with bad morals, and which convey to him a wrong and distorted view of modern life.

When the period of his segregation has expired it is probably time for him to accompany the last draft to the hills, where they are always sent during their first summer in India. There has been no opportunity for him to sit for his third-class certificate of education, which he could probably quite easily have obtained. On arrival at his destination in the hills he very possibly receives no encouragement to work for his examination, and a good opportunity is wasted in six months of comparative idleness. If books are difficult to obtain in the plains they are at least ten times rarer in the hills, where the oldest papers and periodicals are always gladly welcomed.

The long Indian summer is a season of comparative rest which can well be utilised, whether in the hills or in the plains, for educational purposes. In order, however, that these opportunities may be taken advantage of the men must receive encouragement and support and be liberally provided with suitable literature. It is an acknowledged fact, compared with other European nations, we are backward in taking advantage of opportunities offered for our improvement. This makes

it all the more necessary that the temple of learning should be depicted in the most pleasing form, its approaches freed from all obstacles, and that good guides should be waiting at every turn to lead those in search of it by the shortest and easiest paths.

In order that the necessary progress may be made we require the support, firstly, of the Army Headquarters in India, and secondly, of the regimental officer.

If Army Headquarters in India were to direct attention to the merit order list of certificates of education issued annually, with special reference to units in that country, divisional and brigade commanders would examine more closely the educational merits of the units in their respective commands. During my period of command, I had three British infantry battalions to deal with. The numbers of men in these without any certificate of education were as follows :—270, 250, 150. I believe that a scrutiny of lists of certificates in all units would show that in some nearly all the men are in possession of third-class certificates, and I hope to see the day when uncertificated men are as rare as third-class shots. I am convinced that were one-hundredth part of the effort now applied to musketry “switched” on to education a very great advance would be the result. I am far from undervaluing musketry, but only wish that the thoroughness of the teaching could be infused into some other branches of the soldier’s training, not the least of which is the training of his intelligence.

When we come to examine the share of the regimental officer in the promotion of education the first person who comes to notice is the officer commanding the unit. Education in the Army in India is not what is described in the language of the competitive examination as a “well-marked subject.” If a battalion presents a slovenly appearance on parade, is badly drilled or below the standard in musketry, it gets a bad name ; but, as far as I am aware, it matters little whether all the men in a unit have obtained third, second, or even first-class certificates of education, as no one outside the unit, except, perhaps, the Inspector of Schools and a few others, are any the wiser. If education in a battalion is to be encouraged the officer commanding should have before him a list showing the educational attainments of the different companies composing it. Credit should be given to those company commanders whose companies contain the fewest uncertificated men. Excuses will naturally be made, but as these are not accepted for bad shooting I cannot see why they should be listened to when it is a case of bad education.

The recruits who join the Service are very much better educated than formerly, and the standard of education will improve year by year. A draft which joins in India has already had the advantages of obtaining third-class certificates impressed on them, and on joining their companies they should be further encouraged to attend

school. As the entire draft will probably proceed to the hills for their first summer, spare time will not be wanting. Unfortunately they will in many cases be separated from their companies, and their attendance at the school may possibly receive little attention.

We shall now follow the recruit into the regimental school. Most of the school instruction for adults takes place in the evening at a time when, as far as my experience goes, it is rarely visited by a company commander or other officer. Unless, however, the room is comfortable, well lighted, well staffed, and well supplied with books and materials, the attendance will not be as good as it might be. A good deal also depends on the popularity of the schoolmaster, an official whom I think is often deserving of more encouragement than he receives.

If the brain is to work to the best advantage the body must be in comfort. Schools are, as a rule, too hot in summer and too cold in winter. How these defects can be overcome is a matter for the regimental authorities, but the more officers visit the schools the more comfortable they will probably become.

In spite of the fact that the British soldier is very handsomely housed in India, the lighting of his barracks remains a lasting blot on our Army administration. Had a fraction of the money spent on those monuments to wasted rupees, the "Ball Alleys," been devoted to the improvement of the lighting of the men's rooms, what an addition it would have made to their comfort and a subtraction from the list of their crimes! With their modern institutes the men remain more in barracks than formerly, but are as a rule obliged to provide their own light if they wish to read or write in their own rooms. A few barracks in India are now lighted electrically. I have no experience of them.

A special oil allowance is granted for lighting schools which is ample, but unless an officer occasionally visits the school in the evenings it is possible that the oil may be devoted to other purposes.

Unless the staff of assistant teachers is both efficient and sufficient some of the students' time will be wasted, as they will not receive that amount of individual attention which is so essential to their rapid progress. In some stations the whole unit proceeds to the hills during the summer, and there is no difficulty about the school. In others less fortunate only detachments can be sent, which are largely composed of the latest draft from home. The schoolmaster, who is very often a married man with a family, may accompany the draft, in which case the education of the men has a better chance. But should this not happen their teaching in many cases suffers, most of them preferring idleness to making the necessary effort. No one being specially interested in this particular branch of their bringing up, they can go their own way. When the schoolmaster leaves the battalion some energy must be displayed in providing a suitable

substitute or in organizing the school during his absence, otherwise the education of the men left in the plains suffers.

The entire system of education during the summer months deserves more attention than it at present receives. The commandants of hill depôts composed of detachments from different corps might receive special instructions with regard to education, and reports might also be compiled showing the success or otherwise of their efforts. These reports would certainly bring to light the difficulties to be contended with, which are doubtless considerable. A very liberal supply of the books necessary for working for first and second-class certificates of education should also be available. I have personal knowledge of men in the hills who were most anxious to work for these examinations, but were deterred from doing so by the difficulty in obtaining the necessary books. The cost of these latter should be reduced to a minimum ; an effort might be made to supply them gratis.

To restate my ideals. In the annual return published on education by the Army Headquarters, the general officer commanding of a division observes that certain units in his command are below the average educational standard. He calls the attention of the brigade commanders of the units concerned to this matter. These order the commanding officers of units to inquire and report. The commanding officers do *not* then send for the schoolmaster but for the company commanders, and ask for their explanations.

Having by means of this simple machinery raised the level of educational efficiency up to or in close approximation with that of the best educated units in India, and awakened a desire for increased learning, we must be prepared to feed the appetite we have thus stimulated with healthy and nourishing food.

The health and physical training of the Army in India has improved in a marked degree during the past decade. Every description of manly game and sport is encouraged, and no effort is spared to train the body so as to approach perfection. I now make an appeal for a little more consideration of the mind. The soil is ready to receive a much more bountiful supply of seed than we are at present sowing. I have already referred to the scantiness of readable matter in a country where reading is often one of the few tolerable pastimes, and in which there are practically no daily papers within reach of the soldier.

The whole system of soldiers' libraries in India requires revision. The present stock of books is antiquated and there is no suitable system of replacement. The books are often so carefully locked up that they are almost useless for the purpose for which they are intended. To realize the situation we must place side by side the return for 10s. spent in books 30 years ago, and what can be purchased with the same sum judiciously expended in the present day.

With all diffidence I make the following suggestions :—

(1) That a general contractor be employed for the whole of India for books, papers, &c., supplied to the troops. The firm offering the best terms should have the contract. There could naturally be no compulsion in the case of officers' messes, but as the contractor would, with a certain amount of preferential treatment, be able to undersell the other firms, it may be presumed that in their own interests they would deal with him. The soldiers' institutes, libraries, &c., would naturally take the best terms they could procure.

The contractor would have the right to establish in every barracks a bookstall, or if more convenient would employ an agent (possibly the man in the coffee shop) to sell books, periodicals, &c., at the contract rates, presumably considerably below the market ones.

In return he might be asked to give as a bonus a good English dictionary and an atlas to each library. He should also supply at a nominal cost, if not cost free, all books, papers, &c., necessary for men working for first or second-class certificates of education.

The men are now quite well enough off to buy books, and a system might be established by means of which the library committee purchased second-hand books from the men, provided they were in good condition and had been purchased from the Government contractor, at one-half or one-third the price. Suppose a 7*d.* Nelson edition purchased from the contractor at 6*d.*, the man would receive 2*d.* or 3*d.* for it.

(2) The establishment of a standing regimental committee, composed of officers with literary tastes and in close touch with the men interested in reading. The duties of this committee would be :—

- (a) To pass the books which the contractor was allowed to sell in barracks.
- (b) To decide in consultation with a sub-committee of N.C.O's. and men and by the help of a suggestion book what works it was desirable to purchase for the library.

I am not sure whether the old system, under which the class of book to be purchased was decided by a committee consisting of the first officer who could be caught and the chaplain, is still in force.

- (c) To sanction periodically the purchase from the men of suitable works as suggested above.
- (d) To encourage the formation of a literary society at which discussions and lectures on books and literary subjects could periodically take place.

(3) The division of the books in the library into two categories :—

(A) Standard works ; (B) the cheaper forms of current literature.

(A) The standard works would be kept under lock and key in the hands of the librarian, as at present.

(B) The cheaper books, from 6*d.* or 7*d.* downwards, would be dealt with as follows :—Each company would be provided with a certain number. They would be kept in boxes provided for the

purpose in the barrack rooms in charge of a man who would be responsible for their safety, and who would deal with them under the orders of his company commander. An occasional interchange of books would take place between companies. Some books would naturally be lost from time to time, but I do not think that with a good system and a certain amount of supervision that the losses would be excessive. The amount of these losses would certainly not be out of proportion to the enjoyment given to a certain number of the men.

A proportion of this class of book would in time be allotted to the larger guard-rooms, hospitals, detachments, married quarters, hill depôts, &c., all of which are at present quite unprovided with books of any kind.

The financial side presents no difficulties :—

- (a) The quarterly allowance, if any were available, would be expended to the best advantage in cheap books.
- (b) A more liberal allowance should be granted by the Central Committee of Institutes in India to all the libraries, and the regimental committee I have suggested might be empowered to expend this grant to the best advantage. This money belongs to units and not to the State, so that no increased expenditure would be imposed on the latter.

My proposals therefore amount to this. To enable men to purchase cheap books of the better class with their spare cash ; to utilize the books so purchased for the common good.

To have in the soldiers' libraries more books and a freer circulation of them among the men.

More encouragement to the reading class of man than at present exists.

We have now, in imagination at any rate, raised every soldier in India to the third-class standard of education, and supplied him with a plentiful supply of healthy and interesting books to delight his spare time. What do we expect from him in return ?

We may, I think, reasonably expect the following :—

- (1) A general rise in the educational standard of the British soldier in India, with a visible increase in the number of men presenting themselves for examination to obtain first and second-class certificates.
- (2) An increase in the incomes of the men, due to many of them becoming entitled to proficiency pay. The total sum might well amount to £600 per annum in many battalions.
- (3) Less difficulty in obtaining educationally qualified N.C.O's., owing to having a larger field to select from.
- (4) The enhanced value of the average soldier as a wage earner in civil life on joining the Army Reserve.

- (5) An addition to the number of his healthy recreations. A certain number of men are fond of reading, and therefore reading should be catered for as well as other pastimes. Reading is the first step towards thinking.
- (6) Lastly, an advance in individual intelligence, the importance of which is so impressed on us in our manuals of training and instruction.

In connection with this I have found that half-an-hour daily devoted by the orderly officer to the practical instruction to the men on guard can do much. If properly supervised it is also a useful opportunity for testing both the common sense and the power of imparting instruction of the younger officers.

It may be considered that what I have written is too idealistic. If, however, the time has not actually come, it is certainly fast approaching, when the collective brain of the rank and file in India will demand more opportunity for expansion than it at present has, and if we are wise and have read the signs of the times correctly we shall meet this demand in a liberal spirit.

To deny to the more intellectual in the ranks of the Army in India any amenity which will help to console them during their long term of expatriation almost amounts to an injustice.

XI.

THE TECHNICAL TROOPS OF AN INDIAN DIVISION.

IN India each division is allotted two companies of sappers and miners and a battalion of pioneers, and is thus well provided for in the matter of technical troops, the proportion being 7·5 per cent. of the other arms. In the Japanese Army in Manchuria the proportion was 5·5 per cent. This was found to be too small, and has since been increased to about 7 per cent.

The varying work met with on service sometimes demands a large amount of skilled labour and at other times only a little, but wherever a large amount of highly skilled labour is required a very considerable amount of labour that is less skilled is generally necessary to supplement it. Thus sappers and pioneers working in combination provide very effectively for all requirements of field work. The sappers and miners supply the more highly technical labour, supplemented when necessary by the skilled labour of the pioneers, which latter are also called upon to perform the duty of divisional battalion.

This combination of sapper companies and pioneer battalions is a peculiarly happy one as regards the Indian Army, in view of the terrain over which that Army will probably be required to operate, a terrain where communications are either undeveloped and the obstacles to be overcome of considerable magnitude, or where the country is so mountainous that almost every step taken by the Army has to be hewn out in advance.

In the following articles a short account is given of the organization, equipment, training, and employment of—

(A) Sappers and miners.

(B) Pioneers.

A.—SAPPERS AND MINERS.

By MAJOR H. R. STOCKLEY, C.I.E., R.E., General Staff.

Introductory.—Sapper or pioneer troops were only raised in India towards the end of the eighteenth or at the beginning of the nineteenth (1717)

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century. Previous to that each regiment of infantry had artificers and pioneers as an integral part of its establishment. We first hear of technical troops as organized bodies in 1776, when four companies of artificers were raised and added to the Bengal Army, and in 1800 two of these companies were serving in the forts of the East India Company about Calcutta. They were officered by engineer officers, but seem to have been garrison troops merely. What eventually became of them—whether they were disbanded or merged into the sappers and miners—is not on record.

At this period the Bengal, Madras, and Bombay Presidencies each maintained its own corps of technical troops, first as pioneers and later as sappers and miners, and these three corps still exist at the present day under the titles of 1st King George's Own Sappers and Miners (the old Bengal Sappers and Miners), the 2nd Queen Victoria's Own Sappers and Miners (the old Madras Sappers and Miners), and the 3rd Sappers and Miners (old Bombay Sappers and Miners).

Although the Army List still shows these three corps as separate and distinct, the fact that they have been officered from the Royal Engineers since the third decade of the nineteenth century and are inspected by the Director-General of Military Works at Army Headquarters, ensures homogeneity in training. Their organisation is also identical, each being made up of six field companies with a *depôt* company and photo-litho and printing sections.¹ The 1st Sappers and Miners has, in addition, a mounted detachment, and the 2nd Sappers and Miners an extra field company for service in Burma, while the 3rd Sappers and Miners has an additional fortress company for service at Aden. The 1st and 3rd each maintain a bridge train.

The defence light sections (old submarine miners) at the several defended ports are affiliated to one or other of the three corps, according to the area in which the section is located.

Personnel.—Each corps is commanded by a commandant, a regimental lieutenant-colonel (who is assisted by three staff officers), a superintendent of park, a superintendent of instruction, and an adjutant, while one of the company officers performs the duties of quartermaster.

The superintendent of park and superintendent of instruction are responsible to the commandant for the technical training of the corps in trades and field works respectively. These two officers, assisted by a few British N.C.O's. of the Royal Engineers, also form the instructional staff of a miniature school of military engineering at the Headquarters of their own corps, where various classes of officers and men of other regiments, both British and Indian, are assembled for instruction in field engineering, trades, &c. The

¹ The first and second each have two of these sections ; the third, one.

adjutant deals with the infantry training of the recruits. Each company has a company commander and a company officer.

While the organization of the corps is designed for the efficient supervision and carrying out of training and for the maintenance of discipline during peace, the unit for war is the field company under the company commander, who is held largely responsible for the training and discipline of his company and its readiness for war. He is a separate accountant to the pay department for pay and to the ordnance for stores. He is thus during peace to all intents and purposes a separate unit commander, as he must necessarily be in war. This tends greatly to foster independence and initiative in an officer during the early years of his service.

A most useful and valuable portion of the personnel in each corps is the staff of British N.C.O's. attached from the Royal Engineers. Many of them complete up to their 21 years' service in India, coming out soon after they have passed all their courses at Chatham. Two warrant appointments are open to them. These N.C.O's. assist in the technical instruction of the corps, two are attached to each field company and to the mounted detachment, and the special sections and instructional staff absorb the remainder. Their services are invaluable, and they form a useful link between the British officer and the native ranks, supplementing the engineering knowledge of the former by their practical skill and knowledge of detail in trades, &c. Many is the time on a heavy piece of work that a company commander has had cause to be thankful for their practical knowledge and resource as an aid to him in the successful completion of the work, while the degree of skill in trades now attained by the native ranks is largely due to the British N.C.O.

As regards the Indian ranks there are differences in the composition of the three corps. The 1st Sappers and Miners are recruited from the races of Northern India, Jats, Sikhs, Pathans, Punjabi Musulmans, a few Hindustani Musulmans, and Brahmans and Rajputs of Oudh—men of fine physique and stamina and splendid workers. Each company is of mixed composition, having half a company of one race and half of another.

The 2nd Sappers and Miners enlist Pariahs, Indian Christians, Tamils, Telugus, and Musulmans from Southern India. Many of these men are born in barracks and are bred as sappers almost from their youth up. There is no caste among them for all practical purposes ; they all eat together.

The 3rd Sappers and Miners are of very similar composition to the 1st. They enlist Sikhs (one-half of whom are other than Jats), Punjabi and Hindustani Musulmans, and Dekhani Mahrattas. The companies are also mixed by sections.

Field units.—The field company has a peace strength of two British officers, two British N.C.O's., three Indian officers, and 189 rank and
(1717)

file (20 of whom are drivers), with 18 mules carrying the 1st Line Engineer equipment. For war two additional British officers and a sub-assistant surgeon are attached. The company is organised in four sections, each commanded by an Indian officer or senior Havaldar,² and the sections are again divided into subsections. Each section has identically the same engineer equipment carried on four mules, and, by a temporary redistribution of the loads, each subsection's equipment can also be made identical. Thus the company can be divided into four detachments, or can be split up into eight parties for work.

All the engineer equipment is arranged for mule transport. The 1st Line Engineer equipment always accompanies the unit. It is carried on the 18 company mules (two spare), and normally comprises entrenching, boring, and cutting tools, explosives, and mining stores. It can, however, be altered according to the nature of work likely to be met with. The 2nd and 3rd Line equipment is carried on 32 transport mules and accompanies the 1st Line Transport. It comprises electric firing gear, explosives, carpenters' and blacksmiths' tools, forge, masons', bricklayers', tinsmiths' and saddlers' tools, rope cordage, &c., iron, steel, nails and spikes, &c.

The company carries in its equipment 359 lbs. wet and 50 lbs. dry guncotton.

The mounted detachment or field troop is only of recent creation, and its organization is still in an indeterminate state. It was raised in 1900 for service in China. At present it is incorporated with the depôt company of the 1st Sappers and Miners, and is in the unsatisfactory condition of having no British officer, and an establishment of only two British N.C.O's., one Indian officer, 46 Indian rank and file. Horses have not yet been supplied, but the men undergo a six weeks' riding course, with which is combined tactical training. For manœuvres, &c., horses are provided.

As this is the only field troop in the Indian Army, technical troops can only be allotted to one cavalry division of the field army. The unit, moreover, cannot be split into detachments in order that more than one cavalry brigade may be provided with sappers.

The engineer equipment is carried on pack horses and mules. There are five horseloads in the 1st Line, two of picks and shovels and three of explosives and demolition equipment. The 2nd Line is carried on 11 pack mules, and comprises entrenching tools, crowbars, and mining tools, explosives and demolition equipment, rope, cordage, artificers' tools, and a Berthon boat; 94 lbs. wet and 26 lbs. dry guncotton are carried by the unit.

The printing sections and litho sections have each a war establishment of two British N.C.O's. and four sappers, and the equipment of each is carried on six mules.

² For the organization to be complete there should be four Indian officers.

In war the printing sections work directly under the orders of the General Staff, and the litho section under the survey.

Engineer field parks.—The stores for six of these units are maintained at the Headquarters of the three corps of sappers and at certain arsenals and on four different scales—ordinary, extra for mountainous country, extra for thickly timbered country, and extra for large bridging operations (the last only at Rawal Pindi and Roorkee). The weight of stores on the normal scale is 859 maunds (610 cwts.), and 76 camels are required for their transport, allowing 380 maunds to be moved at one time. The war personnel is found from the sappers and miners and from certain British N.C.O's. drawn from the Military Works Services and Ordnance Department trained in park duties.

Bridging train.—As in the British Army, there is now no longer a separate bridging unit in the sappers and miners. Heavy bridging is carried out by the field companies. Pontoon trains, of 120 yards of bridge each, are kept up by the 1st and 3rd Sappers and Miners with 16 sappers (pontooneers), the sappers being incorporated in the dépôt companies. In war these pontooneers would move with the train and would be attached to any field company required to carry out pontooning; 36 pontoon wagons are necessary for the train and four carts are required for miscellaneous stores. For the transport of these, 296 bullocks with 194 transport attendants are required.

Berthon boat equipments for 100 yards of light bridge are also kept up by the 1st and 3rd Sappers and Miners. Each equipment requires 33 army transport carts, or 52 camels.

Railway companies.—There are two railway companies maintained in India, but they do not form an integral part of any one of the sapper and miner corps. They are employed in peace time entirely under the Railway Department in running and maintaining sections of branch lines of the North Western Railway. In war they would come under the orders of the Director of Railways. The war establishment of each company is two British officers, two British N.C.O's., and 195 Indian rank and file.

A works' company does not exist in peace, but its war establishment is found from the Military Works Services and consists of three British officers, four military upper subordinates, eight lower subordinates, three clerks, and 800 coolies. It works under the orders of the Director of Works.

TRAINING.

Technical training.—The sapper's training is divided into two main heads—his military training and his technical training. As at home the year is divided into two seasons, but in India the season for collective training is the cold weather, lasting roughly from 1st November to the end of February, while the furlough season lasts from the middle of March to the middle of October. In most parts

of India manœuvres have to take place during November or December, before the spring crops are well out of the ground, and the sappers are frequently required to proceed in advance to the manœuvre area to prepare water supply, roads, &c.

The bulk of the collective training has, therefore, to be carried out after manœuvres, and the remainder of the season for collective training is very fully occupied with field works, musketry, heavy bridging, and what is called military training. This latter has its counterpart in the squadron and company training of the cavalry and infantry. The sapper company then usually moves out into camp and there carries out field engineering from a tactical point of view and field firing.

In addition there is the special training of the officer, both tactical and technical. This is carried out chiefly by means of tactical exercises and regimental tours, in which officers are exercised in tactical problems and in the tactical application of their technical work.

Drill and tactical exercises are carried on all the year round.

In the hot weather or furlough season 15 per cent. of the men are allowed to be away at one time on furlough for three and a-half months, and 20 per cent. on leave for two months. This is the season for individual training in field works, musketry, &c., but it is chiefly devoted to the trades instruction of the men. Though only a proportion of artificers (on the A, B, and C rates of working pay) are allowed under regulations for the establishment of a corps of sappers and miners, it is the ideal that nearly all the men of a unit should be qualified in one or more trades and be trained in those trades up to the first, second, or third rate of working pay, and that there should be as few labourers as possible. To enable a man to qualify and become efficient at a trade, daily consecutive attendance is necessary for a considerable period of time, and by taking advantage of the furlough season a period of three-and-a-half months at least is secured for this instruction.

India offers the advantages of varied opportunities for work on a large scale. The Military Works Service and the Public Works Department are often able to employ sapper labour on the contract system on road-making and bridging in the hills, on platelaying or railway bridgework. Minor field operations, small peace expeditions or political missions into frontier regions generally necessitate the employment of the sappers for road and bridgework, &c. All these afford excellent opportunities for practical training or for applying the results of training and for working under strain.

Tactical training.—It may fairly be said that the sappers and miners have attained a high standard of technical efficiency, but it is pointed out in the Memorandum on Army Training in India in 1910-11 that—“It is in the tactical application of engineering and in co-operation with other arms where there is room for improvement.”

Co-operation with other arms can best be practised at brigade training and divisional manœuvres. On service this co-operation is often so vital to the success of operations that the need to practise it is the more urgent.

Effective co-operation of the engineer arm can make its influence felt in almost every operation of war—in the attack, defence, pursuit, passage of rivers, advanced and rearguard actions; yet we do not often see actual co-operation practised. There are certainly difficulties in the way of practising engineering operations in peace manœuvres, such as the lack of material and the impossibility of utilising that on the spot, and there is, perhaps, more make-believe in field engineering than in the work of the other arms. It is this aspect of make-believe that is discouraging and apt to mar the interest of peace manœuvres. It can, however, be overcome to a great extent, as it is hoped may be demonstrated in a future paper.

The year is so short for the programme of training that must be carried out by a sapper unit, that suggestions which involve any additions to the training programme, or any deduction of time from other important duties, are made with diffidence. Technical efficiency must be secured first of all. Co-operation may, however, be practised, in some instances, in the very commencement of the training season at or near the station. For instance, it may be possible to arrange, in some stations, that a party of sappers carry out a portion of their field works' course for a few days in co-operation with a company of infantry during its company training. Opportunity might similarly be found for a section of sappers to co-operate in battalion training, and a whole company in brigade training. Where possible the sappers and pioneers should practise working together. In this way, by close association at the outset and by mutual knowledge and intercourse, the functions of the engineer arm on the battlefield will be realized by all, and co-operation will become an established custom instead of merely a theoretical desideratum.

War services.—The war services of the three corps have been as varied as they have been distinguished. Besides having taken part in every campaign that has occurred in India and on its borders since the beginning of the nineteenth century, one or more of the corps has been represented on field service across the seas—in Egypt, Suakin, Abyssinia, Somaliland, the Aden Hinterland, Persia, Baluchistan, Burma, Java, and China. Thus they may almost be said to have earned the motto "Ubique" enjoyed by their brothers of the Royal Engineers.

Each corps has taken part in some 45 campaigns and expeditions, and it is worthy of note that the battle honours of the 2nd Sappers and Miners number 31; while since 1837, the year of the inauguration of the Indian Order of Merit (the reward for valour for the Indian Army), over 90 men of the 1st Sappers and Miners have won this distinction.

Space does not admit of recounting in detail the many gallant feats of arms to the credit of the corps, but the campaigns in which each may be said to have especially distinguished itself are as follows :—

1st Sappers and Miners.

Siege of Bhurtpore, 1805.

Siege and capture of Bhurtpore, 1825–26.

Storm of Ghazni, 1839.

Siege and storm of Multan, 1849.

The Indian Mutiny, 1857–58, including the blowing in of the Kashmir Gate at Delhi.

2nd Sappers and Miners.

Siege and capture of Seringapatam, 1799.

Assaye, 1804.

War in Scinde, 1843

Indian Mutiny and Relief of Lucknow, 1857–58.

Tofrek, 1885.

3rd Sappers and Miners.

Storm of Ghazni, 1839.

Siege and storm of Multan, 1849.

Indian Mutiny, 1857–58, and the siege and capture of Jhansi.

Maiwand, 1880.

IMPERIAL SERVICE TROOPS.

Imperial Service Sappers.—"Imperial service" is the designation applied to certain of the troops kept up by the protected States of India. These troops are so trained that they can, when required, be placed at the disposal of the Indian Government. They are under the code of military law which obtains in their own State during peace, provision being made that on active service they come under rules which follow the spirit and, so far as applicable, the letter of the Indian Army Act. These rules can be applied by the officer commanding any force with which Imperial Service troops may be serving.

The States of Sirmoor, Faridkot, Maler Kotla, and Tehri-Garhwal each maintain a field company of sappers and miners, which when reported efficient is allotted its place in the field army.

These companies are officered entirely by Indian officers, their commanders being generally either men of rank and position in the State or related to the ruling house.

An inspecting officer with an assistant are appointed from the Royal Engineers. These officers inspect, advise, and generally superintend training. They also exercise a certain amount of financial

control in relation to the provision of stores and equipment, but no actual command.

The companies are organized on the same lines as the Regular Sappers and Miners, are about the same strength, and have a similar 1st Line Engineer equipment, but their 2nd and 3rd Line equipments are considerably less complete. They send officers, N.C.O's. and sappers to various classes of instruction with the 1st Sappers and Miners at Roorkee. Some of these men are well-educated and reach a very fair degree of proficiency in engineer duties, while the general efficiency of the companies is very good and is steadily improving.

Two out of the four companies have been employed on field service under the Indian Government. The Maler Kotla Sappers were in Tirah in 1897-98, and in China in 1900-01, and the Sirmoor Sappers took part in the Tirah campaign in 1897-98—both did useful work. On field service an engineer officer, usually one of the inspecting officers, is attached as adviser to the officer commanding a company.

B.—PIONEERS.

By MAJOR H. F. COOKE, 32nd Sikh Pioneers.

In India we have at present 12 pioneer battalions, composed of natives of the country, recruited from Sikhs, Madrasis, Musulmans, Jats, Hazaras, Dekhani Mahrattas, and Pathans, each with the same establishment of British officers as is allowed for an infantry battalion. One battalion is allotted as divisional troops to each of the nine divisions into which the army in India is divided, and the remaining three battalions are, for the present, employed as army troops, *i.e.*, they are allotted to an army but not to any particular formation.

Their organization and conditions of service are similar to those of an Indian infantry battalion, while in respect of establishment they only differ to the extent that in their ranks are included 24 trained artificers, *i.e.*, one carpenter, one blacksmith, and one bellows or hammerman per company. These artificers enlist under a 10 years' agreement and receive, in addition to pay of rank, artificer pay according to their qualifications. In some regiments masons and bricklayers are also enlisted, but good craftsmen are found troublesome to keep, owing to the difficulty in peace time of finding them work of a sufficiently remunerative nature to keep their pay at a figure that would compare with the rates they could obtain in civil life. There is no difficulty, however, in training the sepoys to an elementary knowledge of these trades. If more is required civil labour is resorted to in peace time and is found more satisfactory in many parts of India. Measures are taken on all possible occasions to get the men trained in special work of this nature.

In regard to equipment, however, the pioneer battalion differs from an infantry battalion to a considerable extent. This difference

can best be explained by dividing the subject under two heads, viz. :—

(a) That worn on the person.

(b) That carried on mules.

To take (a) first. It will be sufficient to say that, with the exception of Indian officers, bandsmen, and buglers, all men carry one or more of the following tools as part of their equipment :—

Hand axes.	Weight, with handle, $2\frac{1}{2}$ lbs. ...	... Carried by all havildars and naicks.
Felling axes.	Weight, with handle, 5 lbs. ...	... Carried by all lance-naicks.
Billhooks.	Weight, with handle, $2\frac{1}{8}$ lbs. ...	... Carried in addition by all naicks and lance-naicks.
Mamooties (or hoes).	Weight, with handle, $5\frac{1}{4}$ lbs.	Carried by 48 sepoy's per company.
Pickaxes.	Weight, with handle, $5\frac{1}{2}$ lbs. ...	... Carried by 42 sepoy's per company.
Saws, hand and chain.	Total weight, 3 lbs.	... One of each carried by all artificers.
Clasp knives	... ..	... Carried by havildars. These are required for cutting the fuze for mining operations.

Or a total per battalion of—

Hand axes	... ..	80
Felling axes	... ..	40
Billhooks	... ..	80
Mamooties	... ..	384
Picks	... ..	336
Saws, hand and chain	... ..	24 of each
Clasp knives	... ..	40

NOTE.—A havildar corresponds to a sergeant in the British Army, a naick to a corporal, and a lance-naick to an unpaid lance-corporal.

Each tool, with the exception of the knife, which is carried in the breast pocket, is carried in a leather case (weighing from $1\frac{1}{2}$ to $2\frac{1}{2}$ lbs.) fixed to braces passing over the shoulders and secured by straps to the waist belt, while to each case is attached a wadded pad to ease the weight on the man's back. These accoutrements require to be very carefully fitted so that the tools ride as evenly and comfortably as possible. The tools can be at once taken out and the handles fitted without noise and without altering the position of the case by one man helping another. It may here be mentioned that, in consideration of the extra weight carried by the pioneer, he is relieved of his great coat and a certain number of rounds of ammunition, for which mule transport is provided. In other respects the equipment carried by him is similar to that carried by the infantry soldier, i.e., he carries his haversack, water bottle, &c.

We now come to (b), equipment carried on mules. This includes, besides a reserve supply of those tools carried by the men, mining

tools, crowbars, ropes, shovels, large saws, explosives with all accessories, anvils, grindstones, carpenters' and smiths' boxes, &c., all fitting into crates. The number of mules allowed for the carriage of these is 50, of which 30 to carry the heavier and more awkward loads are permanently attached to each regiment in peace time. The loads are so distributed that each double company is self-contained and capable of being detached with its full equipment at any time and for any work it may be called upon to perform. A double company is referred to as the most convenient unit for work, but for tactical purposes the company, of course, remains the unit as in the infantry.

Each battalion is supplied with a certain number of wire-cutters, which are at present carried on mules. The number supplied, however, is too small and it is proposed to increase it. They should more correctly, it is suggested, be carried on the person by some of the men. Men should also be practised in throwing hand grenades which might form part of their service equipment. In Tibet, for instance, these would have proved most valuable in the capture of Gyantse Fort.

Having briefly compared the organisation, &c., of pioneers with that of infantry, the next point to consider is the question of their training in peace time, both military and technical. As regards the former there is no difference; they fire the same musketry course, are trained to the use of machine guns, carry out signalling, company training, free gymnastics, drills, &c., to the same extent as infantry. In the cold weather they attend manœuvres and camps of exercise when the tendency is to incorporate them as part of an infantry brigade instead of as a divisional unit, which is, strictly speaking, their rôle under our war organization. This is largely due, no doubt, to the scope of manœuvres being limited.

Now, to turn to their technical training. In addition to a long special course undergone by all recruits, covering a period of 70 days, each man combines with his military training, instruction in field entrenchments, bridging, the use of explosives, &c., so far as is found practicable on the field works ground which is allotted to each battalion in cantonments. To assist in this training a sum of money is granted annually for the purchase of materials that may be necessary. For additional training in technical duties these regiments are dependent on taking up civil contracts such as the construction of roads, railways, canals, &c., and this they are permitted, and moreover encouraged to do, provided their employment does not unduly interfere with the Indian labour market. This system of contracts is not only popular with the men for the reason it puts extra money into their pockets, but also teaches officers (British and Indian) and non-commissioned officers who undergo a course of instruction in pioneer duties generally with the sappers and miners, to distribute their men with care and to the best advantage, and to economise in the use of tools and explosives which have to be paid for out of the earnings. When thus employed

military training is not sacrificed as each double company can usually be struck off pioneer work once or twice a week, and men like the periodical change. They can be withdrawn from such private employment should conditions of active service arise at any time during the period of their work, such as to render their presence elsewhere necessary. Failing the existence of such conditions there is no limit fixed as to the length of time they may be employed on contract work, and the ordinary rules governing the completion of a contract once taken up, apply.

One double company in each pioneer battalion is at present expected to be specially trained in railway work, including platelaying, the laying out of curves, the introduction of points and crossings, and the construction of temporary culverts; but in peace time it is often difficult to obtain sufficient employment in such duties to ensure a thorough training in the more technical details being maintained. This latter point, however, is not perhaps very material in view of the fact that in time of war these technical details would more generally be performed by the civil staff of railways, leaving only construction work to be carried out by combined military and civil labour. Before leaving the question of their technical training it may be mentioned that each pioneer battalion has in barracks its own workshops (carpenters and blacksmiths), where the artificers, if not employed on Government work, can be seen turning out articles of all descriptions at comparatively low rates. When the battalion is on works their time is fully occupied in making and fitting fresh handles to entrenching tools, re-tipping picks and mining tools, straightening crowbars, &c., as the casualties with the somewhat light tools with which it is equipped are usually heavy.

The conclusion to be drawn from the above is that pioneer battalions, in addition to being fully trained to take their place among the fighting troops, are also trained to a greater extent in engineering duties than the infantry who would not usually be called upon to do more than meet their own general requirements in respect of field entrenchments. Whereas on the other hand pioneers are always available for the construction of special field works, improving roads and making new ones if necessary, demolitions, &c., when they provide their own covering parties.

The demand for the services of these regiments has testified to their usefulness in peace, while the fact that usually two and sometimes more have been employed for some years past in frontier operations carries with it a like testimony of the appreciation of their value in war. Their maintenance in peace time costs but little more than that of an infantry battalion, while on service extra pay and food is only given in return for special services rendered, and the extra transport required amounts to only about 70 mules (including the 50 for equipment) per unit, hence there can be no question of their upkeep

being in any way an extravagance, a point which has to be borne in mind when studying, as we are required to do, economy in connection with the administration of the army.

One great advantage of the pioneer unit which must not be forgotten is that the men, with the necessary tools for removing obstacles, improving roads, making entrenchments, &c., on their backs, can set to work at once and are not hampered by the presence of mules wandering about behind them.

There remains the question of their employment in war. Their first duties are to take part with the fighting troops and when not required for these duties their special training in peace enables them to be most usefully employed in improving communications and adding to the powers of resistance of a force by providing skilled labour for the construction of special field works, &c. It is impossible to lay down hard and fast rules in this respect and it must be left to the commander of the force to decide how best to employ them under the circumstances.

No attempt is made in this article to show in detail the nature of the work of a pioneer battalion *might* be called upon to perform in war, as this can best be judged from what has already been written in regard to their equipment and their training in peace, combined with a study of the regulations dealing with the requirements of a force in the field in the various situations in which it may be placed.

In conclusion the following instances of how these units have been employed on active service in the defence of the frontier of India may prove of interest :—

Ambela, 1863.—At first the two pioneer battalions included in the field force were employed on the lines of communications and other special work. Towards the end of the campaign, however, they took their place with the fighting troops. It was they who bore the first brunt of the Ghazi onslaught and with great success.

Afghanistan, 1878–80.—Of the five regiments employed, one took part in all the fighting and accompanied Lord Roberts on his march to Kabul, while the others were more often employed on special work on the lines of communication.

Sikkim, 1888.—The one regiment which formed part of the force was employed as a fighting unit throughout.

Relief of Chitral, 1895.—The only battalion with Colonel Kelly's force was a pioneer unit, which was at the time of the outbreak of hostilities working on the roads in the Gilgit district. The men had to divest themselves almost entirely of their tools and fight their way to Chitral with his small column.

With the main force advancing from India were two battalions, which were chiefly employed on special work.

Frontier Disturbances, 1897–98.—The three units engaged were employed chiefly on special work.

Waziristan, 1901-02.—On this occasion the services of the two regiments employed were utilised sometimes for special work, and at others as fighting troops when they divested themselves of their tools and performed the duties of infantry ; in fact, the two regiments with one other infantry battalion composed a separate column during one phase of the blockade.

Tibet, 1904.—Here again the two battalions forming part of the force were employed in both capacities, but took active part in all the fighting throughout the advance of the Mission to Lhasa.

Frontier Disturbances, 1908.—Both regiments, although employed to a large extent on special work, were called upon at times to perform the duties of infantry.

Ahor, 1911-12.—The one battalion employed was occupied in improving the communications in rear of the fighting column.

XII.

THE CAVALRY SCHOOL, SAUGOR.

IN 1904, to a great extent as a direct result of the South African War, the Cavalry School at Netheravon sprang into existence. Moved to Bordon and Bulford in 1905 and 1906, it finally came back to Netheravon, where, following the main lines of the schools at Saumur, Hanover, and Pinerola, it soon vindicated its creation.

After passing through many vicissitudes, the Netheravon School has reached a high standard of usefulness, and as time goes on and its valuable functions are more fully appreciated, it must ultimately play as important a rôle in the maintenance of cavalry efficiency as its predecessors on the Continent have done.

Once the practical usefulness of Netheravon was fully demonstrated, it did not take long before a demand for a similar institution made itself felt in India. A scheme for the establishment of a Cavalry School in India was formulated by Lieutenant-General Sir Douglas Haig, K.C.I.E., K.C.V.O., C.B., then Inspector-General of Cavalry. Like all proposed innovations in conservative India, the scheme received its due share of opposition and difficulties, chiefly of a financial character. The authorities, however, having come to the conclusion that properly trained cavalry could do all that mounted infantry could, and do it probably better, decided to abolish all the Indian Mounted Infantry Schools and devote the savings to the establishment of a Cavalry School.

It was therefore decided, in 1909, to proceed with the necessary preliminaries. The location of the School was naturally one of the most important questions for decision. It was essential that it should be centrally placed, in a district where the cost of feeding both man and horse, particularly the latter, would be comparatively small, and where the climate was temperate. Saugor, which combines the above requirements with the advantages of being situated on a short branch line connecting two trunk lines and of having recently vacated artillery and British infantry barracks available for use as school buildings, was eventually fixed on, and in March, 1910, the

orders of the Government of India for the creation of the School at that place were finally issued.

Accommodation was provided for 64 officers (including the staff), 30 N.C.O's., and 60 Indian ranks. The accommodation for officers is adequate, comfortably furnished by Government, and compares favourably with the usual bedroom accommodation in most clubs. Stables and the usual out-offices have also been provided. The monthly rent charged by Government is 15 rupees, including hire of furniture, with the addition of a water cess of 1 rupee 8 annas per mensem. The British N.C.O's. and Indian ranks have also been housed in existing barracks altered to meet their respective needs. The British N.C.O's. have an institute comfortably furnished, including a piano and billiard table, while the Indian officers enjoy the use of a club room which has been specially provided for their comfort. The officers' mess, also a converted barrack, is one of the most conspicuous buildings in the School, and consists of a spacious ante room, a dining room capable of seating 100 persons, a billiard room, library, and a room specially set apart for the use of the instructional staff, all suitably fitted up. The Commandant's house occupies a central and prominent position on the School Hill. This building, as also the mess, the sergeants' institute, and the covered riding school, are all lighted by means of the Airlite system of petrol gas, a most excellent and inexpensive illuminant introduced from England. At present the classes consist of 40 subaltern officers, 20 Indian officers, 16 British and 20 Indian N.C.O's., and for their instruction the staff consists of :—

- 1 Commandant.
 - 1 Adjutant and Quartermaster.
 - 3 British officers
 - 1 Indian officer
- } Instructors.

The above are assisted by six British and one Indian Student Instructors, nominated by His Excellency the Commander-in-Chief, one of whom belongs to the Royal Engineers, and a veterinary officer is also attached to the staff. In addition to the above, there is a somewhat undermanned staff of British and Indian warrant officers and N.C.O's.

The object of the School is to teach squadron officers and N.C.O's., British and Indian, the best methods of training their men and horses on a general and universal system, so as to fit them as expeditiously as possible for service in the field. British officers on the conclusion of their course should be fitted to train a squadron, and all ranks should have a practical knowledge of the duties a cavalry officer and N.C.O. (as the case may be) is called on to perform.

To attain this object, the course of instruction includes equitation and horse training, skill-at-arms, horse management, and veterinary subjects, farriery, judging forage, fitting of saddlery and harness,

strategy and tactics, reconnaissance, despatch riding, military engineering as affecting cavalry, supply and transport arrangements in the field, and sanitation.

On the principle that an ounce of practice is worth pounds of theory, in all branches of the work the aim is to combine practical work in the field with theoretical instruction. The course only lasts for eight months, and consequently horse training and equitation absorb more time than any other subject, at least four hours a day being devoted to them.

The object aimed at in these two subjects is to teach students the proper sequence and best methods of training both recruits and remounts. Each student has to break in and partially train one absolutely raw horse, and has to complete the training of a horse which has been brought (partially trained) to this stage the previous year.

A shady 12-acre paddock has been made, in which the raw remounts are turned loose in April until the arrival of the students the following September. The students personally take over these horses at the paddock, and so from the first become thoroughly acquainted with the handling of the genuine raw article.

The School is well equipped for this part of the training under all conditions of weather, as there is a very fine closed school 182 feet by 72 feet. The floor has been specially prepared; fascines made from millet stalks closely bound together with bamboo strips cover the whole area. Over the fascines is a 6-inch layer of mud, and over this again a mixture of sand and sawdust to a depth of 9 inches. This floor was originally put down as an experiment, but it has proved so successful and durable that it has been decided to retain it. There are also four open manèges, one circular manège, three exercise grounds with skill-at-arms tracts, jump course, a jumping lane, and a steeple-chase course. The latter is $1\frac{1}{4}$ miles long, with every variety of jump. This course, and also the exercise grounds, will improve as time goes on and more money becomes available for their development. There is also a circular course and three slides for training men and horses to cross difficult broken ground.

As the natural corollary to equitation and horse breaking, horse-mastership forms a most important part of the course.

During the last half century one of the most interesting features in the Army of the British Empire has been the advancement of the cavalry in India. From a heterogeneous and territorial body of mounted troops, there has developed a homogeneous and Imperial Corps of Cavalry. This progress has been slow but sure, and the great turning point in bringing this branch of the Service to the present high standard, was the adoption of the reorganization scheme.

Before this time regiments, except under very extraordinary circumstances, never left the Presidency or Provinces in which they

were designated, and in many instances regiments resided in a station for years.

The result of the last system was, that in course of time, both officer and man of the regiment became an expert horsemaster in the particular district in which he was stationed, but at the same time he must have felt the lack of knowledge in the other Provinces for want of experience.

The system proved useful for a local force, but it was not Imperialism, and it is this one must consider when thinking of the training of the Indian Army.

In the vast area of the Asian Peninsula, with its differences of climate, of staple food, of country to travel over, it can be readily realized that the tuition of the young soldier should not be limited to any particular area, but extended to the whole of the country ; in other words, a soldier is required to have a good general knowledge of horsemastership, in any circumstances and conditions in India, but not in India alone. The Indian cavalry is but a section of the Imperial Army, and it is imperative that the soldier should be acquainted with the conditions that exist in the many parts of the Empire.

When the Cavalry School was formed, it was recognized that, essential as it was to adopt a general and universal system of equitation in the Indian cavalry, it was also essential that a similar course of instruction should be adopted in horsemastership and veterinary first aid ; on this basis the section was formed, and an officer of the Army Veterinary Corps appointed as an instructor.

The following is the general idea of the syllabus adopted at the School. All ranks receive instruction under the various headings, although the standard varies according to the grade of the student, the British officer coming first.

This syllabus has been constructed with the idea of preventing disease, and thus reducing the percentage of casualties in the Service.

In India and the Colonies a veterinary officer may not be within a distance of 100 miles or more, and great stress is laid upon the subject of Veterinary First Aid, in which the soldier can " carry on " until professional attendance is at hand.

A knowledge of strategy is essential for all cavalry officers to enable them to appreciate the meaning of the movements which they have to watch and report, and so each year a campaign is selected for study, and lectures are given upon it. In addition to this, lectures are delivered dealing with the tactical and strategical employment of cavalry in the field, supplemented by practical exercises in the field.

These latter take the form of short tours and also schemes, starting with the operations of a squadron, and gradually working up to the operations of large bodies of cavalry and mixed forces.

During these exercises students have actually to carry out the duties of patrols and despatch riders, so that they may fully appreciate the difficulties with which their men have to contend when employed on reconnaissance and carrying reports by day and night in unknown country. These exercises also afford opportunities for practising rapid sketching and the writing of clear, concise reconnaissance reports.

A knowledge of engineering is necessary for all cavalry, as they have so often to act independently of the other arms. It is more especially so with cavalry in India, where at present only the nucleus of a mounted force of engineers exists. Consequently a Royal Engineer officer is employed to instruct all ranks in such engineering duties as they might be called on to perform in the field. The course embraces practical instruction in the following subjects :—

1. Crossing of rivers by means of improvised rafts and bridges.
2. Demolitions, with and without explosives, especially of railways.
3. Construction of hasty field defences and obstacles and alarms for use at night.
4. The use of telephones and tapping wires.

The medical officer attached to the staff gives a series of lectures dealing with sanitation and the prevention of disease in peace and war.

The supply and transport arrangements in the field are dealt with from time to time by Supply and Transport officers detailed for this purpose.

The nucleus of a good military library exists, and should in the course of time develop into one of the best in India.

Though from the above it may be seen that the students are not over-burdened with leisure hours, still it is needless to say that where 40 young cavalry officers are assembled, every form of sport receives its due share of attention. Saugor is situated in the centre of a district famous for its shooting, and certain blocks of Government forest are reserved for the use of the School. In the grounds there are five polo grounds, a racecourse, a chascourse, and a racquet court, while the station tent club affords fair pig sticking.

Commanding officers evidently appreciate the value of this Institution and have given it their unqualified support, and it is gratifying to know that the Inspector-General of Cavalry and cavalry brigadiers consider that much benefit can already be noticed in regiments which have adopted the system of training brought back from the School by officers and N.C.O's. detailed to attend the course. The Cavalry School has only sent out its first batch of instructors, so that as time goes on and more instructors became available, great improvement in the recruit, and horse training on a uniform system, may reasonably be expected.

NOTE A.

SYLLABUS.

Horsemastership and Veterinary First Aid.

Elementary anatomy and physiology :—A mere outline of the structure of the horse, with remarks on the principal functions of the different organs.

2. Conformation and points of the horse :—Good and bad points in horses for various purposes.

3. Locomotory apparatus :—Principal superficial muscles in locomotion, arrangement of the leg below the knee. Remarks on locomotion in general, the horse at rest and at the different paces, centre of gravity, the mechanism of locomotion, lateral displacement, flexion, extension, propulsion, remarks on stable and unstable equilibrium, how propulsion is affected, the distribution of weight, relation of condition and disease to locomotion.

4. Veterinary sanitation :—A general outline of sanitation at home and abroad adaptable for the service, mentioning the common errors made.

5. Veterinary first aid for simple diseases.

6. Veterinary first aid for contagious diseases.

7. Ageing :—Remarks on the common dealers' tricks.

8. Saddles and saddlery, including the common seats of injuries, prevention and first aid.

9. Bits and biting, including common mistakes in fitting bits, seats of injuries, prevention and first aid.

10. Shoes and shoeing. (Every student goes through a course of cold shoeing.)

11. General and individual dietetics, including care and management of horses at home and abroad, in camp, on the line of march, and on service.

Individual cases are :—

a. Breeding establishments.

b. Remounts.

c. Troop horses.

d. Special cases.

12. Transport of horses by land and sea.

XIII.

THE ATTACHMENT OF REGIMENTAL OFFICERS TO OTHER ARMS IN THE FRENCH AND JAPANESE ARMIES.

A.—FRANCE.

By MAJOR F. D. FARQUHAR, D.S.O., Coldstream Guards, General Staff.

AS the question of attaching regimental officers to units of other arms is still in an experimental stage in Great Britain, it may perhaps be of interest to place on record the method in which this question is treated in France.

It is as well to say at once that it is not suggested that the best method of introducing reforms into the British Army is by a slavish adoption of the methods of Continental nations, whose conditions of service, national temperament, and strategical situation may differ widely from our own. Such a course would undoubtedly be an error; but, on the other hand, is it not an even greater mistake to decline to consider a certain military reform, because it has been adopted on the Continent, if it is intrinsically a sound one?

In France there is a widespread system of attaching regimental officers to other arms, in addition to a similar attachment of Staff College graduates before and after the Staff College course. The extent to which this system has been carried is shown by the fact that 9 per cent. of the infantry and 6 per cent. of the artillery officers in the French Army have been attached to arms other than their own.

The details of the system are briefly as follows: Attached officers are usually captains or majors¹ and are attached for 10 months; during this period, they are not mere visitors but take their turn of duty like anyone else. They take their place according to their rank, and matters are usually so arranged that the attached officer is immediately junior to his battalion, company, squadron, battery

¹ In the French Army, infantry battalions and artillery brigades are both commanded by majors.

or *groupe* commander ; in the absence of this commander, the attached officer commands the unit.

The writer had the good fortune to be attached to a French regiment during battalion training in 1911, and so had an opportunity of seeing the practical results of the system.

In the regiment in question, the lieutenant-colonel had commanded a brigade of artillery during his period of attachment and two of the battalion commanders had commanded cavalry squadrons at manœuvres.

The result was very striking. No cavalry or artillery were available for any of the battalion field days, but at the conferences which concluded those field days, the manner in which co-operation with those arms would have been carried out was always discussed, and discussed with real knowledge, not with the apologetic hesitation that is inevitable when questions dealing with "the other arms" are more or less of a mystery. The spirit of these discussions may be exemplified by a remark of the regimental lieutenant-colonel to his officers : "I want you to consider yourselves as three-quarters infantry and one-quarter artillery."

The French officers were greatly in favour of this attachment system on account of its great educational value, not only to the officer himself, but to the unit to which he is attached and to his own unit when he returns to it. This education is not entirely military, for these attachments enable officers of different arms to know and understand each other better, and develop their *esprit d'armée* without lessening their *esprit de corps*.

The French officers were asked if there was any opposition from regimental commanders at having to hand over one of their units to an officer of another arm in the middle of the training season. The answer was : "Undoubtedly there was great opposition at first ; but everyone recognizes now that the system is a good thing, and it has become so much a matter of course that no one grumbles any longer."

The crux of the matter appears to lie in the length of the period of training. During the period of elementary training the attached officer has no unit to command, but has time to settle down in his new surroundings, to solve the "mysteries" of his new branch of the Service, and generally to educate himself, so that when the time comes for him temporarily to command a unit, he is able to do so adequately. This is only possible if the attachment is a long one ; if the attachment is short, the attached officer can only be a visitor, cannot be trusted to command, need never work his brain at all, and will probably derive but little real benefit from his attachment.

It may be mentioned that owing to the two-year term of service in France, very great efforts are necessary if recruits are to be trained in the short time available ; the training is more intensive than in

England, the hours of work are on the average longer, and everything that is not essential to battle training has to be put aside. In spite of this fact, it is considered advisable to allow certain units to be temporarily commanded by officers from other arms; the certain advantage to be gained by the Army as a whole is held to more than counterbalance the possible diminution in efficiency in the unit concerned. This appears to form a strong argument that a similar procedure is certainly feasible and probably advisable in Great Britain.

B.—JAPAN.

By MAJOR E. F. CALTHROP, Royal Artillery, General Staff.

Special Regulations in Japan deal with the question of attached officers. They apply to the attachment of officers to staffs, arsenals, and regimental dépôts for instructional purposes, as well as to units of arms other than their own. Nothing is laid down as regards the length of such attachment; all that the Regulations say on the subject being: "Divisional commanders may detach officers from one unit to another as often as necessary, and they are responsible for furnishing the object of study to such officers before they are detached."

As a matter of fact, the length of attachment to other arms varies from a visit of two or three days to a course of from three to six weeks. These visits are carried out by officers of all ranks. A British officer who was attached to a battalion of the 25th Infantry Regiment in 1910, reported as follows: "The commander of the 8th Division, with his brigade commanders, chief of staff, and cavalry and artillery regimental commanders, paid short visits of one day each to every unit of the 7th Division. The officer commanding the 25th Regiment, on his way to attend the regimental commanders' conference at Tokyo, visited every unit of the 2nd Division on his way there, and of the 8th Division on his way back. The officer commanding my battalion, with one captain and one subaltern, made a tour of one fortnight, during which he visited all the infantry units of the 8th Division, while three other officers of the regiment were attached to other arms during the year."

In addition to the object of promoting the co-operation between the arms in the field and improving methods of training, these attachments or visits are also carried out with a view to the interchange of ideas on interior economy, so that improvements in these respects may be spread more quickly and differences in regimental systems reduced.

Staff College graduates are attached to units other than their own for three months in each of the three years that the course lasts.

XIV.

TRAVELLING KITCHENS.

By COLONEL M. W. J. EDYE, Assistant Director of Supplies and Transport, Irish Command.

IN our latest War Establishments we have the first official notification that the Army is to be equipped with travelling kitchens. It is there stated that certain G.S. wagons are allowed for "cooking, pending the issue of travelling kitchens."

The introduction of these kitchens is by no means a new idea; they have been on trial in some Continental armies for many years, but till recently, Russia seems to have been the only country in which they have formed part of their regular equipment.

In a recent pamphlet reprinted from "*La Revue d'Infanterie*," it is stated that in 1859 a Prussian Staff Officer was attached to the French Army with a view to studying the subject. About that time Von Moltke wrote: "The large number of cooking pots required means large quantities of fuel, not always obtainable in the theatre of operations; several hours are required for preparing the food, and should, during this time, an alarm take place, the food has to be thrown away. It is, therefore, necessary to devise some other method. With travelling kitchens the food can be prepared *en route*. The soldier finds a hot meal on his arrival at the bivouac and can take his rest."

In spite of the above it is interesting to note, however, that Germany has only recently adopted travelling kitchens.

In 1860, the Russians were already experimenting with portable kitchens, the reason no doubt being that their necessity was brought home to the troops when making long marches on change of stations. In 1880, the Russian troops were actually equipped with travelling kitchens, and General Gourko reported strongly in favour of them.

It is interesting to inquire into the reasons which have at last decided most Continental Powers to adopt travelling kitchens. This resolves itself into weighing the advantages and disadvantages of the kitchen, also remembering that the care and comfort of the soldier at the present time is far more considered than it was formerly.

The advantages of travelling kitchens may be summarized as follows :—

- (a) They give increased mobility to the troops.
- (b) Their use helps to keep the men in good health.
- (c) They lighten the soldier's load.
- (d) They help to prevent straggling.
- (e) Their use tends to conceal the presence of the troops.
- (f) They add considerably to the comfort of the men.
- (g) They require less fuel.

With regard to (a) "Increasing the mobility of the troops." Men who are regularly fed with ample and well-cooked rations can march better and longer distances than men who have poor meals at irregular hours. To enable travelling kitchens to perform their proper functions, they must be kept well to the front with the first line transport, so long as the tactical situation permits, in order that when a convenient halt takes place the men can at once get a meal. The soldiers by this arrangement do not suffer from fatigue in the same way as men who have to endure long intervals between their meals, and, consequently, more can be got out of them. A report on the Russian manoeuvres of 1902 stated: "If the troops have proved themselves capable of remarkable endurance, it is due to the use of travelling kitchens which has increased the endurance of the soldier from 20 to 30 per cent. This was most noticeable during forced marches. It can be said without exaggeration that three regiments possessing travelling kitchens are worth an entire division without them. (A division consists of four regiments.) Again, it was stated by a Russian General that "they enable men to cover from 10 to 15 kilometres more a day at the cost of one-third less men lost from fatigue, also there is much less straggling as the men know that immediately they arrive at their destination there will be a distribution of cooked food."

The following is an extract from a report of a Russian Staff Officer during the late war in the East :

"Extended fronts of great strength held by a force on the defensive have been the cause of the long duration of modern battles. This has given opportunities for counter-attack entailing long marches carried out by whole Army Corps, *e.g.*, the march of the 1st Siberian Corps from 25th February to 3rd March. In marches of this nature it is perhaps of more importance than in any other circumstance to economize the physical strength of the soldier. I consider, therefore, that the use of travelling kitchens is the best and perhaps the only means of keeping up the strength of the soldier during long and fatiguing marches."

With regard to (b) "Maintaining the health of the troops." Men who have to carry their rations during a march or an engagement

and then cook them will get a very poor meal. With poor meals the health of the men will rapidly deteriorate.

Collective cooking is better than individual cooking, but it is a well-known fact that men thoroughly fagged out by long marches at the end of which they have to wait several hours while their food is being prepared, prefer to sleep rather than to eat, or only eat what can be obtained at once. Instances are quoted in history where officers have had the greatest difficulty in rousing their men and inducing them to eat after they have once got into their bivouac and gone to sleep.

Then, again, the sanitary conditions under which men carry their food on their person and to which it is subjected on arrival in a bivouac, militates against a wholesome meal.

With travelling kitchens men will be able to have well-cooked meals both on the march and during lulls in fighting. The Russians brought their kitchens (sometimes on pack animals) into the trenches on the lines of the Sha Ho at dusk, where they remained till just before daybreak, the men getting two hot meals during this time.

In a report on the German manoeuvres of 1908 it is stated that some of the men preferred a crust of bread rather than have to do any cooking so that they could get to sleep, the result being that this insufficient means of nourishment caused the men to grow ill-humoured as soon as they had to undergo any great fatigue, while at the same time it lessened their power of resistance. When this is continued for any length of time, health will suffer. The same report states that the troops who had travelling kitchens were in good spirits, kept up their strength, and were able to perform their day's work in a most satisfactory manner.

Another point with regard to these kitchens is getting the full value out of the ration. There will be little or no waste and the men will get more, as well as far better, cooked food.

An eye-witness of the recent Russo-Japanese War states that one great advantage of the travelling kitchen is that it permits troops to boil their water. He states that during the summer the troops suffered little from enteric in a country where, generally speaking, only stagnant water was available. On the other hand, some newly-formed regiments of the 4th Siberian Corps who had no travelling kitchens suffered considerably from the disease.

With regard to (c) "Lightening the soldier's load," as the current day's food is in the kitchen, the man need not carry the "unexpended portion of the day's ration," amounting to some 3 lbs.; also it is unnecessary for them to carry any sticks for fuel.

With regard to (d) "Preventing straggling," it is well known from history how badly-fed troops often lose all sense of discipline, which usually has resulted in straggling, but with the introduction of these

kitchens, straggling will to a great extent be prevented and men will use every effort to keep up when they know that food is to be served out at the next halt, and then again immediately they arrive at their destination for the night. Von Moltke, when writing in favour of these kitchens, said : " The kitchens also serve as a rallying point to the various companies and the exhausted men gather round them." In the pamphlet mentioned at the commencement of this paper is mentioned the true, though somewhat flowery, dictum of a French General that " the travelling kitchen is the flag of the famished stomach."

As regards (e) " Tending to conceal the presence of the troops," the use of travelling kitchens does away with the necessity of making fires in the open. If necessary, the fires of the kitchens can be extinguished and the meals can still be kept hot, as in most patterns of travelling kitchens the boilers have oil jackets for this purpose.

Regarding (f) " Adding to the comfort of the men," little need be said, as the increase to the men's comfort is obvious.

With travelling kitchens men can have a good and well-cooked hot meal during the march, and on arriving at their destination they will find another hot meal ready at once and can then retire to rest ; without travelling kitchens there are long intervals between getting proper hot meals, and on arrival at the bivouac it will be many hours before a meal can be got ready, and then often it will be a very unsatisfactory one.

Troops who have to go on outpost duty will be able to have hot food issued to them and take it to their positions in their mess tins instead of having to go without any hot food, except when fires are permitted, which would be exceptional.

Regarding (g) " Requiring less fuel," 3 lbs. per man per diem is the usual allowance, but unless extra fuel is required for drying purposes, 2 lbs. is sufficient.

At a recent experiment made by the Germans it was found that 33 lbs. of wood were required to cook for one company at war strength (250). I myself saw an excellent kitchen using paraffin, of which $6\frac{1}{2}$ gallons (say 70 lbs.) suffice for the entire cooking for one day for 500 men.

The saving in fuel is important, as it must be remembered that no fuel is " issued " on service and it has to be obtained locally ; this means extra and hard work for the troops after they have arrived tired at their bivouac. All travelling kitchens have a place for carrying fuel, and there is the additional advantage of it being possible to dry damp and wet wood while it is being carried.

We will now consider the disadvantages of travelling kitchens ; they are few.

The chief disadvantage, and it is a very serious one, is the increase in the number of vehicles with an army. Already the enormous

amount of transport that nowadays it is necessary to have in the field is a constant source of trouble to the commander, who must have clear roads for his fighting troops. The answer to this objection is, I think, that the advantages, as have already been set forth, so outweigh the disadvantages, that these kitchens become an absolute necessity to an army. It must be remembered too, that with increased railway facilities and the introduction of fast running motor lorries, replacing the long and slow-moving horse transport columns of the past, the roads will be far less congested than they have been up to the present time. Mechanical transport occupies something like one-fifth of the space of horse transport, and with lorries capable of averaging 12 miles an hour, roads can be quickly cleared.

Another criticism that has been directed against the travelling kitchen is the likelihood of its lessening the ability of the soldier to do his own cooking. This is not a sound argument. It has never been the intention that the training of individual men in preparing their own food should in any way be interfered with or that the mess tin should be abolished. On the contrary, in all the Regulations and all that has been written on this subject on the Continent, it is an axiom that mess tins are invariably to be carried by all the men, and that they must, if necessity arises—and on a campaign it is certain to arise—be prepared to cook their own rations.

Another objection that has been brought forward is, that when travelling kitchens break down, the entire food of a unit is not forthcoming. Possibly travelling kitchens will occasionally break down, but even if they do so, it will generally be possible to transfer the food to the mess tins, and, if this is not possible, the men carry an iron ration and an emergency ration in their haversacks on which they can fall back.

The only other point to consider is the pattern of kitchen we require. On what lines our own authorities are working¹ in this respect I am ignorant, but on the Continent experiments have been going on for a number of years. The following appear to be the essential requirements to be fulfilled in designing a travelling kitchen:—

1. It must be of such construction that it is capable of following closely the movements of troops, and must be able to go anywhere it is possible for a wheeled vehicle to go. The centre of gravity must

¹ *Details of the cooking vehicle now under consideration*:—It is a two-horsed, limbered vehicle, with 4' 8" wheels, cooks for 250 men, i.e., allowing 10 quarts for every 12 men. The rear part of the wagon contains the fire and four cooking pots, in addition to a hot water boiler. The limber takes four cooking pots, which can be closed down for slow cooking, the intention being that, as soon as four pots on the fire have been brought to the boil, they should be placed in the limber for completion of cooking, and the other four pots placed on the fire. Provision is made for carrying groceries and certain utensils in a box on the limber. The weight of the vehicle, with food carried is approximately 23 cwt.

be low so as to prevent it being upset on rough ground, but at the same time there must be good clearance underneath, as it may have to go through shallow rivers, have its wheels in deep ruts, or go over lumpy ground. It must be capable of turning in narrow roads. It must have a simple and reliable brake.

2. It must be sufficiently strong, but at the same time the weight must not be excessive.

3. It must be capable of cooking while on the march as well as while stationary.

4. It must be capable of burning any kind of ordinary fuel.

5. Some arrangement, such as an oil jacket round the boilers, to keep the food hot when the fires are out, is very desirable.

6. It should be capable of carrying the day's rations for the men it is intended to cook for, also forage for the horses drawing it, the kits of the driver and cook, and a certain quantity of fuel.

7. It must allow of distributing the food rapidly.

8. It should have separate compartments for boiling tea or coffee and for cooking meat and vegetables.

9. It must be fitted with all the necessary articles for the preparation of food, such as chopping boards, saws, cleavers, knives, spoons, &c.

10. The cooking portion must be capable of being easily cleaned.

The pattern fulfilling most nearly the above requirements appears, from experiments that have been made in the various Continental armies, to be as follows :—

The vehicle must be in two parts on the limbered principle. One part contains the cooking arrangements, the other part carries food and all the necessary stores. The weight when full, but without the driver, is about 21 cwt. It is drawn by two horses, and each portion is capable of being used with one horse. It can cook the rations for 250 men and carry sufficient fuel for one day.

The experiments seem to indicate that it is very undesirable to have heavier vehicles which would cook for more men. The desideratum appears to be to have a light vehicle which can go anywhere. Though this is most desirable, it unfortunately means a larger number of vehicles.

I have seen an excellent pattern of kitchen which can be placed on to a G.S. or any other wagon, and taken off in camp when the wagon is required for other purposes. It cooks for 460 men and weighs when empty 12 cwt. The makers claim a pattern they manufacture to cook for 1,000 men that can also be lifted on to a G.S. wagon. The fuel is vaporized paraffin, to which there might be objections in the field, but it must be remembered that with mechanical transport we shall now have to take large quantities of this oil on service. Still, it means an extra article of store to be supplied, and, for that reason alone, is objectionable.

Before concluding I must mention one other kind of kitchen, which is aptly called by the Americans a "fireless cooker."

Various patterns have been experimented with, but the principle is the same, viz., a receptacle into which the food is placed partially cooked; it is then hermetically closed and placed in another case or box, the space between being packed with some non-conducting material. So sealed, the cooking continues automatically for about three hours, as the temperature falls only at the rate of 3 degrees Fahrenheit an hour. The apparatus weighs about $1\frac{1}{2}$ cwt. and will cook for 25 men; four of these cookers go to a company, and are carried in the company baggage wagon. In Norway and Italy, though, a similar "cooker" is used, the ordinary cooking pots are also utilized by placing them in boxes stuffed with hay, cork, &c.

In conclusion, I would again emphasize the enormous advantages that will be gained by the introduction of travelling kitchens from the points of view of increasing the marching powers of the men, of the comfort they will afford the soldier, and the advantage to his health. These arguments more than outweigh the only real disadvantage, viz., increased number of vehicles on the line of march.

RUSSIAN TRAVELLING KITCHENS.

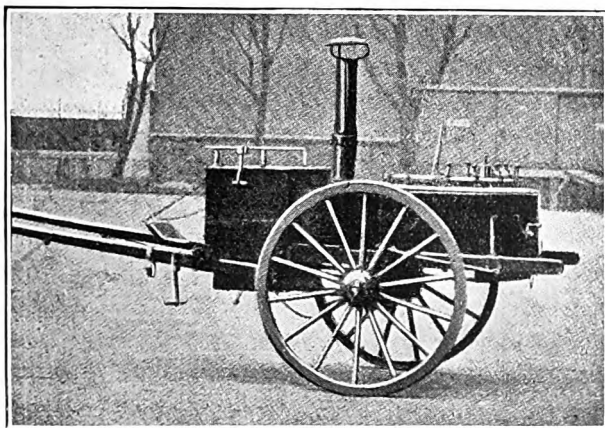


Fig. 1.
Cavalry Kitchen (Russia).

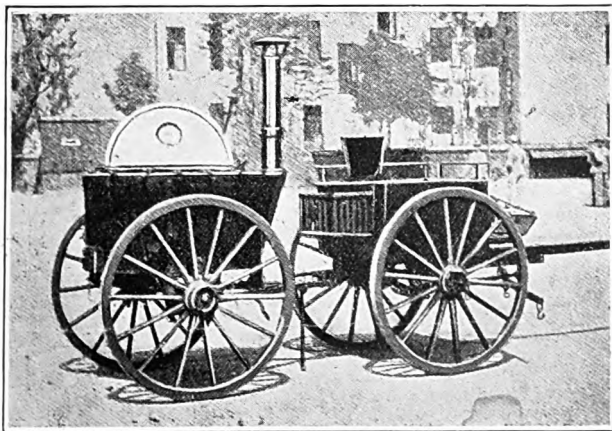


Fig. 2.
Infantry Kitchen (Russia).

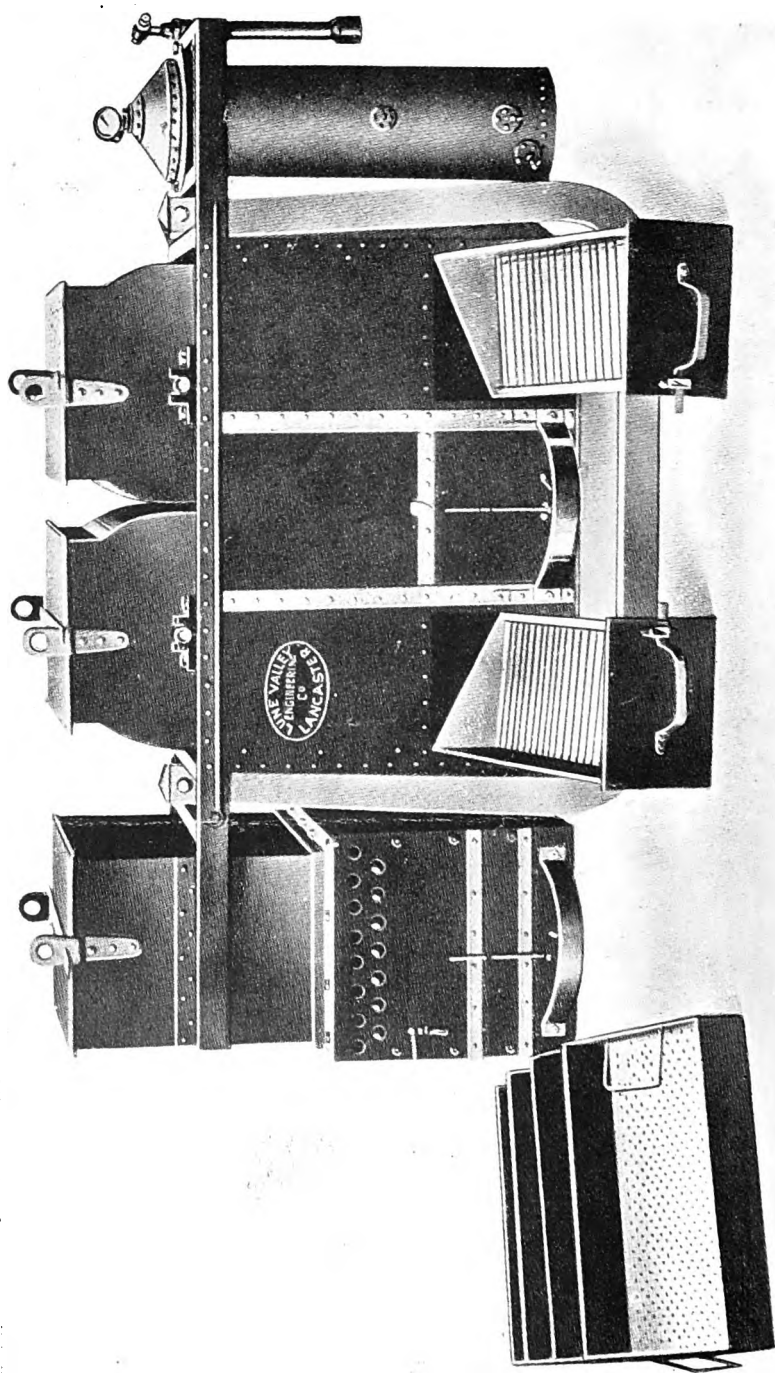


Fig. 7.
Kitchen for G. S. Wagon. Fuel, Paraffin.
(Made by the Lane Valley Engineering Company, Lancaster.)

XV.

THE PEACE ORGANIZATION OF THE CAVALRY OF THE LINE AND ITS EXPANSION TO AND MAINTENANCE AT WAR ESTABLISH- MENT.

By CAPTAIN T. W. WHIFFEN, 14th Hussars, Recruiting Staff Officer.

THE ORGANIZATION OF CAVALRY OF THE LINE.

NOW that the reorganization of the Army on a Short Service basis—the first step of which was the Army Enlistment Act of 1870, due in its inception and foundation to Lord Cardwell and in its prosecution to a great extent to Mr. Childers—has been extended to its logical sequel by the Cavalry Linked Regiment System and the establishment of depôts, it appears to be a not inopportune moment to put forward the scheme in its entirety. Regimental officers have not the time, and perhaps still less the facilities for absorbing the details of the scheme by necessary research, yet it is on their loyalty and disinterestedness that depends the absence of inter-regimental friction which alone will conduce to the realization of the full value of such reorganization.

The impossibility of adopting the Short Service System to individual units has been so forcibly illustrated by the present Director of Recruiting and Organization in the July number, 1911, of this review as to need no recapitulation. It suffices to remark that every argument put forward to prove the imperative claims of the linked-battalion organization may be used with equal emphasis in respect to cavalry. With reference to the necessity of a system producing an efficient reserve it is only necessary to recall the ease and regularity with which units replaced their normal war wastage in the South African Campaign as compared with the collapse, in respect of expansion, of the Regimental or Long Service System in Crimean days.

RECENT HISTORY.

Prior to 1892 a regiment was divided into eight troops, a troop being the unit of local administration, and the squadron of two troops the tactical unit; the whole regiment being the administrative unit.

Thus each regiment was composed of four squadrons, each of two troops.

It has been decided by long experience that the greatest number one leader can efficiently look after and control in detail with subordinates is, approximately, 150 men and horses. To insure facility and speed of manœuvring, the division of the above into four subdivisions has proved the most satisfactory. Further, the greatest number of direct subordinates a commander can control is found in practice to be four. In this way we arrive at our organization of regiments, squadrons, and troops.

In 1892 the present squadron organization was established in barracks as well as in the field, the regiment remaining as before the administrative unit. The *depôt* of all cavalry regiments while on foreign service was at Canterbury.

In 1893 a departure was made in the method of recruiting, a man being definitely enlisted for the Corps of Dragoons, Lancers, or Hussars of the Line and not for a single regiment.

The idea was mooted at the time of the feasibility of so far amalgamating regiments into such corps as to make provision for the young soldier who had ceased to be a recruit, but who was too young to be posted to his regiment abroad; and to give more latitude for the provision of drafts. This scheme was still-born, and the definition of corps remained primarily for the purpose of the Army Act.

In 1897, the cavalry underwent a new organization. Each home regiment was formed into three service squadrons and a reserve squadron. There were at this time—two regiments having been despatched to South Africa—sixteen regiments at home, eight on the higher and eight on the lower establishment.

A still lower establishment was authorized for regiments last from foreign service. This, however, was but a passing phase, and the regiment was soon placed on the standard lower establishment.

Four brigades were organized. The first two brigades, at Aldershot and Canterbury respectively, were composed only of regiments on the higher establishment and formed, together with a composite regiment of Household Cavalry, the 1st Cavalry Division. The *depôts* of regiments serving in Egypt and the Colonies were attached to the Second Brigade at Canterbury. The reserve squadron of a regiment proceeding abroad became the nucleus of the regimental *depôt* at Canterbury. Regiments in India had no *depôts*, drafts being supplied as required by regiments of the same corps of Dragoons, Lancers, or Hussars of the Line on the lower establishment. Canterbury still remained the place of mobilization for all reservists.

¶ In India the establishment was an approximate mean between the higher and lower establishments at home. In the Colonies the establishment, together with that of the regimental *depôt* attached to the Second Brigade, was somewhat lower.

With the exception of minor alterations, the cavalry was worked on this basis until in 1905 a reorganization was decided upon with a view to make each regiment as far as possible independent and the posting of recruits permanent. We may call this the *Depôt System* pure and simple, as it was originally intended that the recruit should do his whole training at the *depôt* until posted to his own regiment.

Two *depôts* were formed, one for Hussars, and one for the Corps of Lancers and Dragoons.

For some years prior to 1902 the terms of enlistment were seven years with the Colours and five with the Reserve. In 1902 the experiment was tried of three years with the Colours and nine with the Reserve. Later, in January, 1905, the terms were altered to eight years with the Colours and four with the Reserve. This continued to be the division of service until the date of this reorganization, when in September, 1905, it was fixed at the existing term of seven years with the Colours and five with the Reserve. The minimum age for cavalry was laid down at nineteen years so as to allow the recruit to be posted to his regiment, if abroad, at the earliest possible moment. This, however, was only an ideal minimum and it was found necessary to retain eighteen as the minimum for the time being. Since then it has been found impracticable to fix definitely the age-minimum. The latter varies month by month and even week by week in accordance to conditions.

Under the new system regiments in the Colonies had three service squadrons and a reserve troop, at home three service squadrons, the reserve squadron being formed on mobilization. The Indian regimental organization was continued at four squadrons.

Regiments were affiliated in pairs—as far as possible a regiment at home and a regiment abroad.

The recruit for a home regiment remained three months at the *depôt* before being drafted to his regiment. The “foreign regiment” recruit remained six months, and at the expiration of that period, being still ineligible for service abroad, was attached to the home regiment, but remained on the *depôt* establishment pending embarkation.

The affiliated regiments therefore were primarily for the purposes of attachment. These affiliated regiments which are the same as the present linked regiments, will be noted hereafter. Reservists on mobilization joined at the *depôt* and there received their personal equipment and necessities.

Establishments were somewhat altered—regiments forming the First Cavalry Brigade were placed on a higher establishment than other regiments at home—and the *depôt* formed at Canterbury for Dragoon Guards, Dragoons, and Lancers had accommodation for nearly 950 recruits, while the Hussar *depôt* at York could accommodate over 700.

PEACE ORGANIZATION.

In 1909 it was decided to link the affiliated regiments of 1905 for the purpose of posting. This affiliation had been planned according to corps, *i.e.*, corps of enlistment—Dragoons, Lancers, and Hussars as defined by Royal Warrant, 1904—a regiment at home and a regiment abroad, and in accordance with the exigencies of the foreign and home rosters, so that when the time came for a regiment to return to England the sister regiment was at the head of the roster for foreign service.

The present system is fourteen regiments on the Home establishment, nine in India, four in South Africa, and one in Egypt. The numbers at home and abroad being equal, the system can be worked in regard to each regiment on a simple and uniform basis.

Cavalry is now composed of only one class—heavy, medium, and light are things of the past. The old idea, which still remains in certain Continental armies, of heavy cavalry for shock tactics, light for reconnaissance work, and a medium branch, used as pseudo-cavalry-mounted riflemen, has gone by the board.

The present terms of enlistment for cavalry are seven years with the Colours and five with the Reserve to complete first engagement. The extension of Colour Service can be sanctioned by the commanding officer of the unit. Only 10 per cent. rank and file establishment are allowed to re-engage, to complete twenty-one years for pension, but as a fact this proportion is largely exceeded in many regiments. This further contract cannot be entered into by rank and file until at least eleven years' service with the Colours has been completed. This limitation, apart from the Treasury point of view, has the effect of restricting the number of men desirous of converting their first engagement Reserve into Colour Service as it is known that only a small percentage will be permitted to re-engage. And thus the danger, by having too many long service men in the ranks, of seriously affecting the necessary reserve and the consequent restriction of recruiting, is materially lessened.

Regiments remain abroad on an average for twelve years.

In each command, excepting Aldershot, a *depôt* will be established,¹ two or three pairs of linked regiments being affiliated to each *depôt*. The *depôt* is not a unit, nor a true cadre, nor even a training centre, but purely, as its name implies, a depository and a mobilization centre. *Depôts* in the past have been looked upon as expensive and wasteful as they have no military or battle value. This might be so in the case of a large regimental *depôt*, but, if we look at our new *depôts* primarily as depositories with the added advantage of an organization which allows the burden of the preliminary training of the recruit

¹ All these *depôts* have now been established and are in working order, with the exception of that in the Scottish Command.

to be taken from the shoulders of the training unit, and further as mobilization centres with establishments which provide cadres as nuclei for the Reserve regiments formed on mobilization, we can assess their value and realize that they are an integral part of the new scheme.

The dépôts and affiliated regiments are as follows :—

Northern (Scarboro').	Southern (Bristol).	Eastern (Woolwich).	Western ² (Seaforth).	Scottish ³ (Dunbar).	Irish (Dublin).
{10th Hussars	{3rd Hussars	{5th Lncrs	{2nd Dn. Gds.	{1st Dn. Gds.	{4th Hussars
{18th "	{7th "	{12th "	{6th Drngs.	{5th "	{8th "
{14th "	{15th "	{9th "	{3rd Dn. Gds.	{1st Drngs.	{11th "
{20th "	{19th "	{21st "	{6th "	{2nd "	{13th "
...	...	{16th "	{4th "	...	...
...	...	{17th "	{7th "	...	...

² Dragoon Guards and Dragoons form the Corps of Dragoons of the Line.

³ Not yet formed.

The peace establishment of the Eastern and Western Dépôts is 87 rank and file ; of the remaining smaller dépôts 69.

All recruits are posted to the dépôt and remain there approximately three months, during which time they do a course of physical training, foot drill, &c., and receive instruction in musketry, lance and sword practice, fencing, semaphore signalling, and map reading. Lectures are given on discipline, hygiene, the pay and emoluments of the soldier, the definition of military terms, and simple protective and detached duties. More important still to the recruit is the fact that he is given the opportunity of attending school and is thereby able to obtain his second or third class certificate of education before joining his unit.

The dépôt is intended also to be a training centre for Yeomanry commissioned and non-commissioned officers, and to be used for the reception of " postings " or " attachments," &c., from the unit abroad. In practice, however, up to the present time, such men have been dealt with by the linked home regiment.

Reservists' mobilization equipment is stored at the dépôt. The personnel is furnished by the affiliated regiments. All recruits, and others who are supernumerary to the dépôt establishment, count against the establishment of one of the home regiments affiliated to the dépôt, whether they were appointed on enlistment to that regiment or to its linked regiment.

At the end of about twelve weeks the recruit is drafted to his own regiment—or sister regiment, if the former be abroad—where he completes his training.

Infantry experience has so conclusively proved the importance of the recruit being trained with a regimental unit, that the present

Cavalry System has been sanctioned. The aim is to render the recruit efficient in the ranks. This is done the more easily by the confidence engendered through association with older soldiers. By making the recruit as soon as possible a member of his troop he the sooner renders himself efficient as an individual in his regimental unit.

Any system by which a recruit remained at the dépôt until he was eligible for posting to his regiment abroad, would entail, if the minimum age for enlistment stood at eighteen, a proportion of such men remaining at the dépôt over two years or for a considerable time after they had become trained soldiers, and so necessitate a larger staff for training.

The peace establishment of a regiment at home has been laid down at 621 rank and file, including the recruits at the dépôt and posted men of the linked regiment, and the regiment is divided into three service squadrons.

As already stated, there are 14 regiments of Cavalry of the Line at home. Twelve of these regiments are formed for war into a cavalry division of four brigades at Aldershot, Canterbury, the Curragh, and Tidworth.

The establishments laid down for India and the Colonies are 533 and 513 respectively.⁴ The regiment in India is divided into four service squadrons, while that in the Colonies is composed of three service squadrons and a reserve troop.

PROVISION OF DRAFTS IN PEACE.

Every regiment at home has to find a draft annually for the regiment abroad to maintain establishment by making good normal wastage. The terms of enlistment being seven years with the Colours, we can approximately calculate the annual wastage for a regiment in India to be one-seventh of its establishment—say 80. So, under normal conditions, it requires a draft of this strength to bring a regiment in India up to establishment; and a few less, say between 75 and 80, for a regiment in Egypt or the Colonies.

The very great advantage which the authorized cavalry establishments give that arm over infantry is the facility with which it secures the annual draft without undue disorganization.

In the first place the difference between the Indian and Colonial establishments is so small that over-drafting or under-drafting with the view of a subsequent move is practically unnecessary. Although a cavalry regiment often embarks for abroad under its foreign establishment because it cannot take men under twenty and it has not so far been the custom to make the home-coming regiment give a turnover, this deficit is inconsiderable and is made good by the first annual draft. The regiment arriving home being on a higher establishment

⁴ Rank and file are alone considered in this article.

the deficit is automatically made good by the transfer of the unfit, the immature, and the untrained from the outgoing to the homecoming regiment.

In the second place it will be seen by taking the home establishment of rank and file plus a due proportion of the *depôt* establishment that the annual draft is only one-eighth of the strength of the home establishment, as against one-fifth in the infantry of the line.⁵ That is to say, the facilities for finding such drafts are nearly 40 per cent. in the cavalry favour, or, allowing a wide margin, it is one-third again as easy to find the normal draft in the cavalry as it is in the case of the infantry.

To put it another way :—Little more than 12 per cent. of the home establishment will be required for the purposes of a draft to a cavalry regiment serving abroad as against 20 per cent. in the infantry. This leaves the cavalry cadre 8 per cent. stronger in proportion to the linked home battalion of infantry after the departure of the annual draft.

It may be noted here that, as far as practicable with the upkeep of establishments and the state of the recruiting market, the minimum limit of age is kept at nineteen. This ensures the earlier drafting of men abroad, as the draft age minimum is twenty. It also lessens the number of non-effectives for that purpose since it is not considered compatible with economy to draft men to their regiments abroad who have less than four years remaining to serve with the Colours.

It is needless to say that draft facilities depend not only on the recruiting market in the preceding years, but also on the precision with which calls and conditions have been anticipated at the time of the enlistment of the now mature men by the responsible recruiting authority at Headquarters.

In considering the formation of the annual draft it must be remembered that on the approach of the trooping season the home regiment is generally permitted to recruit over its strength in anticipation of the withdrawal. The excess men are carried on the margin provided for by the annual vote in Parliament which admits of a total in excess of the sum of the aggregate establishments. The proportional establishment of the *depôt*, although counted on paper as belonging to the regimental establishment, is of course not available for foreign service.

Assuming, however, that the home regiment is recruited up to but not over establishment, and taking an average strength of eligibles and non-eligibles, we shall consider whether the provision of the normal annual draft militates against the utility of the regiment at home, and its ultimate object of being an efficient cadre for expansion in time of war.

⁵ "The Short Service System," THE ARMY REVIEW, July, 1911.

Now, of our home rank and file establishment of some 620 we shall assume that 30 per cent. of this total—a generous proportion—are men belonging to the regiment abroad. Of this 30 per cent. we may very probably find the 12 per cent. required or it may happen that the ineligible so far outnumber the eligibles as to create a small deficit. The following example of division into categories of our premised percentage demonstrates this.

Five per cent. of the total—a high estimate⁶—at the dépôt are under three months' service; a further 15 per cent. or half of our material are composed of men with the home regiment who are still recruits or who are under twenty years of age; or who are temporarily unfit.

This leaves us with but 10 per cent. for the purposes of the draft. The remaining 2 per cent. of home establishment required will be found from men who originally enlisted for the Corps of Dragoons, Lancers, or Hussars in question, but who selected the home regiment. These will now be required to be posted to the foreign linked regiment.

A certain number of the men forming the draft will be "postings," or attached men from the foreign service regiment, old soldiers finishing their term of duty at the dépôt, &c., but the majority will be young soldiers who only recently arrived at "maturity."

The home regiment is now some 80 men below establishment, which has not greatly impaired its efficiency as a war cadre. The deficit in normal times will be easily made good and the establishment completed as soon as requisite, *i.e.*, towards the end of the recruiting year. It may here be noted that a cavalry regiment not being localized, as is the infantry, it is of little consequence if the regiment be entirely closed to recruiting.

EXPANSION FROM PEACE TO WAR ESTABLISHMENT.

We now come to the crucial test of the whole scheme which can finally be determined only by its success in war. It is proposed to estimate its value by its adaptability to war conditions and by its power to bring the cadre—the regiment at home—up to the strength and efficiency of a fighting unit. It must have the power of elasticity, and the ability to provide drafts to make good war wastage. At the same time it must create out of the raw material to hand such trained reinforcements as will be required to carry to a successful conclusion a prolonged campaign.

⁶ As the normal annual draft is 80, and recruits remain three months at the dépôt, the number of recruits required at the dépôt at any one time is one quarter of this figure, or 20; but as casualties, &c., have to be taken into account, 25 to 30 is looked upon as the normal figure. These figures must vary according to the period of the year, as the bulk of recruits enlist between October and March.

It cannot be too forcibly emphasized, in order to understand the current organization, that the regiment at home is not a unit in the true meaning of the word, but the cadre of a fighting unit.

It will be necessary to premise certain conditions and to work through on this basis to a conclusion of success or failure. As war establishments are worked out on the basis of a campaign in a civilized country, we include this condition in our premiss. It is obvious that numberless modifications of organization may be essential, and that there is no limit to the consequent variations. The elasticity of the system depends on its capacity to meet those imposed conditions.

For the purposes of this article, the non-effectives at the dépôt and those with the home regiment are taken as normal.

All calculations are for rank and file. Other casualties, or the majority of them, will be normally made good by means of promotion from lower ranks; but, in an approximation, such exact calculation is of little importance. Attached men have been ignored. In dealing with reservists the numbers on which percentages are based are approximately those of the two sister regiments with a due allowance for medical rejections and desertions. It is hardly necessary to mention that, on the principle that one cannot have one's cake and eat it too, the growth of the Reserve is at a standstill during the time men are retained with the Colours.

We shall now take into consideration the procedure on orders being issued for a general mobilization in view of a campaign for service in which the home regiment is mobilized and the linked regiment remains abroad in India or the Colonies for garrison work outside the theatre of operations.

For the avoidance of false or too favourable conditions it will be assumed that mobilization takes place towards the end of the year and a normal draft has brought the Indian regiment up to establishment while the home cadre was up to but not over its establishment before the despatch of the draft.

Mobilization.

Cavalry of the Line are dependent on mobilization on Sections B⁷ and D, Army Reserve, Class I.

Section B is composed of men completing their first period of engagement of twelve years and those who are permitted, for the purpose of the reduction of the regimental strength to allow of more recruits and the subsequent increase in the number of the Reserve, to convert the unexpired portion of their Colour Service.

Section D is composed of men who have completed above engagement or who have not more than fifteen years' service with the Colours, and who re-engage for four years, extended to five in certain

⁷ Section A, Army Reserve, Class I, does not apply to mounted branches. The Cavalry Special Reserve is otherwise accounted for.

eventualities. In addition there are those who are specially permitted to re-engage for further periods of four years on completion of the current engagement as above with the proviso that discharge is compulsory at the age of forty-two.

The peace cadre depends for the completion of its personnel to war establishment upon its numerical strength less the unfit, the immature, and the untrained. The places of these ineffectives are taken by the regiment's regular Reservists and by postings from the same corps, by attachments, and by transfers.

On mobilization Reservists join at the dépôt. Having been medically examined and provided with their personal equipment and necessities, they are immediately despatched in batches to the unit, *i.e.*, the home regiment.

The war establishment of a cavalry regiment, excluding attached, numbers 439 rank and file.

This establishment is supplemented by the first reinforcement at the base which is equal to 10 per cent. of the fighting strength of the unit.

The dépôt is now placed on a war footing with an authorized establishment of 25 and 20 rank and file for the larger and smaller dépôts respectively. It ceases to be more than a receiving station. The recruit enlisted after this conversion is forwarded to the dépôt, and after receiving clothing, &c., is posted forthwith to one of the affiliated Reserve regiments.

A Reserve regiment is formed for each pair of linked regiments (14 Reserve regiments in all) and this takes over excess numbers after the home unit has been brought up to war strength. These include the immature, the temporarily unfit, the insufficiently trained, and the Reservists surplus to initial requirements on mobilization. The Reserve regiment takes over from the dépôt the non-effectives of the regiments affiliated to it, and possibly its own quota of men of the Permanent Staff who have not rejoined their unit or been otherwise disposed of, and are in excess of the war establishments as laid down for cavalry dépôts. For the purpose of drafts an establishment of 621 rank and file is authorized. The strength will, of course, vary considerably as it is inclusive and largely composed of recruits in training, and it must be remembered that in connection with the absorption of surplus reservists that all available "establishment room" may be needed for the accommodation of the numbers of extra recruits who flock to the Colours in war time—unless indeed the market be spoiled by the enlistment of highly-paid irregulars.

Provision of Drafts in War.

We have now before us the several links in our chain—the war dépôt; the Reserve regiment; the base dépôt with first reinforcement; and the fighting unit at the front.

It may be as well to point out that for one year the Indian or Colonial regiment can be safely ignored as regards the provision of the normal draft. All men enlisted undertake to extend their service on first engagement by one year in case of emergency—that is to say, the men can be held for thirteen years from date of attestation. It follows therefore that the Indian or Colonial regiment does not call for its annual contribution during the first year of a war.

If the campaign were a prolonged one, provision would have to be made to keep the regiment in India or the Colonies up to establishment.

Every regiment on mobilization has to find details for units not formed in peace time, but these postings and attachments may be ignored for the purpose of a purely approximate calculation.

On our premiss the cadre, the home regiment, will be some 12 per cent. below establishment. To this deficiency we must add a further percentage of the total establishment based upon a fair estimate of the number of non-effectives at the dépôt, comprising recruits under three months' service per pair of linked regiments, plus the non-effective strength of the cadre composed of partially trained men and medical rejections. These would account in all for about 50 per cent. of our establishment as non-effectives.

The war establishment of our fighting unit is some 440 men. We shall therefore at the outset be about 30 per cent. below this establishment. To this we must add a further 10 per cent. for first reinforcement.

It can, however, be safely calculated, that our Reserves will make good these deficiencies, and still retain a strength equal to 120 per cent. of the war establishment of the fighting unit.

However, as is explained forthwith, it is necessary to depend upon the Reserves for the supply of reinforcements during the early months of a war.

We have a 10 per cent. reinforcement at the base dépôt which is mobilized and proceeds to the theatre of operations with the regiment. It will then be necessary almost immediately to expedite a further draft of the same strength to make good.

It is calculated that 70 per cent. of the establishment is required to make good the war wastage during the first twelve months of a campaign, inclusive of the first reinforcement. This means somewhat over 300 men.

It has been estimated that, after the second reinforcement—during the third, fourth, and fifth months of the campaign—a monthly draft of 5 per cent. strength will meet contingencies, and in the sixth month a draft of 10 per cent. So that during the first six months of the campaign and after the establishment of the Reserve regiment, the latter will have to find some 150 men. These men, to be fit to encounter the enemy, must be trained men on mobilization. To

permit of a generous margin, men who attain full training within the first six months of the campaign are not considered in this calculation. Therefore, on the assumption that these drafts are supplied by our Reserves, the latter will be depleted in numbers equal to a strength of 35 per cent. of the fighting unit as against the 120 per cent. possessed after the completion of the first reinforcement.

After the expiration of six months some 75 per cent. of our original home cadre non-effectives will be effective, while invalided men will have recovered and former medical rejections will have been passed on re-examination. There is in war time a constant stream of such men passing and re-passing through the Reserve regiments. It follows, therefore, that in a way the Reserve regiment is supplied from fresh sources automatically; and, with the maturing of recruits enlisted since the outbreak of the war, the supply of drafts does not become more difficult as the campaign progresses.

In addition we have still the unused material of Sections B and D amounting to a strength of approximately 85 per cent. of the establishment of the unit at the front to draw upon. Section B will be utilized first, as its components are the most recently transferred Reservists, and presumably the more efficient soldiers.

During the second six months of the war, on the calculated basis of 70 per cent., a further 25 per cent. of the fighting strength will have to be furnished. It is obvious that with the material to hand not only can this wastage be made good, but a very wide margin may be left for error and for the provision of later reinforcements.

It must be borne in mind that the example given is by no means a favourable one. On account of the premiss that a draft has just been furnished for India, the percentage of Reservists in our fighting unit, together with the first reinforcement, is over 35 per cent. on completion.

On mobilization in 1899 for the South African War, the 14th Hussars left England with 47 per cent. of Reservists, but the majority of the Line regiments of cavalry were under 33 per cent. on first completion to war establishment. It is contended that this latter figure will now be, under like conditions, considerably improved upon.

It may be objected that the Reserve regiment will be called upon to feed and keep up to war strength both the linked regiments affiliated to it. In this case if one of the two linked regiments be in India, for example, and up to establishment, it should be able to complete with first reinforcement without extraneous help.⁸ Our calculated strength of Reserves is equal to any call that may be made by the combined regiments during the first six months of the war, and still leaves a surplus of some 50 per cent. of war unit strength to furnish,

⁸ The regiment in India is maintained at an establishment considerably superior to the war establishment as laid down.

with the now fast maturing new material, any further drafts that are required. Consequently the system is able to bear on these hypotheses any strain placed upon it within the limits of an ordinary campaign.

CONCLUSION.

It is hoped that the foregoing exposition of cavalry organization will prove a help to those who have not yet had the opportunity of mastering its details.

The attempt has been made for the sake of greater lucidity to follow the recruit from his attestation, first in peace time and then in war, through the various dépôts and units until he takes his place as a trained soldier on foreign or active service; and on mobilization to trace the Army Reservist back to the Colours and to the unit at the front. The illustration given of a mobilization under the conditions is to show the approximate strength of the component parts of a regiment on a war footing, and to suggest the variations of such parts according to the under or over establishment of units.

The advantages of the system under normal conditions are sufficiently apparent. So long as all cavalry regiments are quartered as designed it works with the simplicity of a well-oiled machine, but its weakness lies in its rigidity. If anything occur to upset the theoretical stationing of regiments either at home or abroad the scheme is not sufficiently flexible to meet the requirements of the cavalry service as a whole. Its disadvantages are a possible loss of equilibrium by having during peace the greater number of regiments on foreign service at the same time, owing to exceptional political conditions or by having the greater number required at home by some variation of the organization for the whole Army. The first condition would be met, if of short duration, by temporary expedients such as the affiliation of the other home units of a dépôt brigade organization or such further extension of it as might be rendered necessary. If of longer duration, the difficulty could be met by the formation of a Reserve regiment as a training unit. The other case would be automatically remedied by the temporary divorce of the linked regiments concerned.

Many expedients have been tried and repeatedly tried in the Army in the past. Whether the scheme under consideration is the best that can be evolved is a matter for history, and whether it is open to further expansion is a matter for the expert. It is at least better than any of its predecessors, is *more flexible* for linked units, and bears a greater strain in times of emergency. It provides for a uniform supply of trained and suitable men to regiments on foreign service during peace; and sifts and apportions the heterogeneous material available in war.

It renders the regiment—or rather the sister regiments—more self-sufficient, and self-sufficiency spells efficiency. Efficiency in

organization is an essential to efficiency in the arm, to efficiency in the crucial test of war.

Whether this new departure in organization will be carried to its logical conclusion by the amalgamation of sister regiments for all purposes which, to the rank and file, would mean an added *esprit de brigade*, is matter for further experiment. At present the soldier must serve in any regiment of the corps for which he enlists and his pride is dissipated. It would not be difficult by means of a quasi-brigade amalgamation of the four regiments affiliated to each dépôt, with a further dépôt in the remaining Aldershot Command for the surplus four regiments of the Eastern and Western dépôts, to secure the manifold advantages of a pure brigade organization. The scheme might still be further extended by the creation of Special Reserve regiments of cavalry, 14 in number, to form the nuclei of the Reserve regiments decreed for war. But the discussion of possible intention has no place here. It is sufficient to remark that such amalgamation of the regimental lists of officers would eliminate such an outstanding grievance as the existing extreme inequality of promotion and the necessity of the complete change of regiment and loss of promotion in the sometimes inevitable exchanges between home and abroad. A cry of loss of *esprit de corps* is certain—but it would be but a feeble wail and not the howl of '73 and '81.⁹

It is submitted that the present generation of cavalry officers would loyally sacrifice any such feeling—none the less real because sentimental—for the greater glory of the Army and their own especial arm.

⁹ The linking of battalions took place in 1873, their fusion in 1881.

XVI.

TACTICAL PROBLEMS ON THE MAP.

By BRIGADIER-GENERAL H. DE LA P. GOUGH, C.B., Commanding
3rd Cavalry Brigade.

THE two following problems on the map, with comments and discussions, are published as a suggestion for the method of conducting the education of senior regimental officers during winter training. Each officer is required to write out his own solution, and these are individually criticized in writing. Afterwards a general conference is held on each problem, its solution is discussed, and the points raised in the individual work are brought out and their good or bad tendencies are emphasized.

This method of instruction is based on the following considerations :—

- (i) Little of value is gained by officers who are forced to write essays in which high-sounding but often meaningless phrases redound. These are often a mere catalogue of generalities, the point of which resides in their application, or, in other words, in understanding and practice. Real instruction can best be gained from the study and solution of concrete problems. It is the *application* of principles in fact that requires study and practice, not learning principles merely.
- (ii) The proper study for regimental officers, in fact one may say of all combatant officers, is tactics—*i.e.*, the handling of troops in the field, or in fact, “*how to fight.*”

The recognition of these principles is clearly evident to anyone who studies the teaching of foreign armies. Moltke did much to inspire and instruct the Prussian Army by his tactical problems. In France the greater part of the instruction, whether of regimental officers, of students at the École de Guerre, or in the numerous magazines, is carried out through the medium of tactical problems. At the Japanese Staff College the same methods are to be found.

The two problems here given have been based on the first two examples in a French work entitled *Causeries sur la Tactique*,

by Captain Serré. It is not pretended that the solutions given are models to be blindly followed, or that the comments brought out in the discussion are themselves above criticism, but they are given merely as indicating the lines on which it is thought, in the opinion of the writer, that the instruction of officers might with advantage be conducted.

PROBLEM No. 1.

Reference Sketch Map I.

A.—*General Idea.*—

A Southern army is advancing on the line Tullow-Ballyragget in the direction of Trim, to oppose a hostile invading army which has landed at Dundalk, and is marching South.

B.—*Special Idea No. 1.*—

(i) The right or 5th Corps of the Southern army is billeted and bivouacked on the night of the 15–16th December as follows ;—

Main body	Ballitore–Castledermot.
Advanced Guard	About Kilgowan.
7th Cavalry Brigade	Kilcullen.

(ii) On the following day the Cavalry Brigade is to march towards Kilcock, and the main body of the Corps is to march at 8 a.m. to Kilcullen.

(iii) On the evening of the 15th December the General Officer Commanding the 5th Corps learns from the Army Headquarters that a further hostile landing is in progress at Kingstown and Bray, and that a strong force of hostile cavalry is at Glencree Reformatory (8 miles West of Enniskerry).

The General Officer Commanding the 5th Corps forwards this information to the General Officer Commanding the Advanced Guard, and issues the following order :—

“The 40th Infantry Brigade, 50th Brigade Royal Field Artillery, 1 squadron the Divisional Cavalry, from the troops now forming the Advanced Guard, together with 1 regiment of the 7th Cavalry Brigade, the whole under the command of General Officer Commanding the Infantry Brigade, will march at 7 a.m. to-morrow to Blessington.

“This detachment will secure Blessington and protect the right flank of the main body during its march to-morrow.

“The main body of the 5th Corps will carry out the orders already issued for the march to Kilcullen.”

(iv) The above order reaches the Commander of the Advanced Guard at Kilgowan at 11 p.m., 15th December, and the Commander of the Cavalry Brigade at Kilcullen at midnight, 15–16th December.

Work Required.

(A) Write the orders and instructions for the detachment.

(B) Explain at what time, and how, your orders would be communicated to (1) the cavalry regiment at Kilcullen; (2) the remainder of the detachment.

The following solution is offered :—

(A) The instruction and orders for the detachment might be written in the following form :—

Copy No. —

Special instructions
to

O.C. 1st Hussars, Kilcullen.

Secret/D/1.

Kilgowan, 16.12.11.

1. (a) A further hostile landing is in progress at Kingstown and Bray. A strong force of hostile cavalry is at Glencree Reformatory.

(b) The 5th Corps is marching to-day to Kilcullen.

2. The detachment under my command is to secure Blessington to-day, and is to protect the right flank of the main body during its march.

It will march at 7 a.m. from Kilgowan, viâ Gormanstown and Ballymore Eustace to Blessington.

3. The operation order for my command will reach you at 6.15 a.m. to-day.

4. Your mission is—

(a) To report if hostile troops are at, or in the vicinity of
Rathmore.
Poulaphuca Bridge.
Lackan.
Blessington.

(b) To secure Blessington and hold it until my detachment arrives.

(c) Having done so, to report further as in (a) above as to
Kippure House.
Kilbridge.
Brittas.

5. The 1st Hussars are to be clear of Ballymore Eustace by 7.30 a.m. to-day.

A. B., *Brigadier-General*,

Commanding Flank Detachment.

Issued at 12.15 a.m. as follows :—

No. 1 copy to O.C. 1st Hussars by Lieutenant H., and by cyclist orderly.

No. 2 copy to 40th Infantry Brigade by orderly.

Copy No. —

Operation Order No. 1,
by
Brigadier-General A. B.,
Commanding 5th Corps Flank Detachment.

Kilgowan, 16.12.11.

Reference $\frac{1}{4}$ -inch Ordnance Map.

1. (a) A further hostile landing is in progress at Kingstown and Bray. A strong force of hostile cavalry is at Glencree Reformatory.

(b) The main body of the 5th Corps is marching to-day in accordance with the orders already issued.

2. The General Officer Commanding intends to secure Blessington to-day and to protect the right flank of the 5th Corps during its march.

3. (a) The following troops composing the detachment, under the orders of the General Officer Commanding 40th Infantry Brigade, will march to-day in accordance with the accompanying "March Table," viz. :—

1st Hussars (from 7th Cavalry Brigade).

"A" Squadron Divisional Cavalry.

50th Brigade, Royal Field Artillery.

40th Infantry Brigade (Colonel A, 1st Munster Fusiliers, in command).

(b) The 1st Hussars will secure Blessington to-day in accordance with special instructions issued to the officer commanding.

Train.—4. The train will march at 9 a.m. under the orders of Captain A, Army Service Corps, viâ Gormanstown, to Ballymore Eustace. Here it will be parked clear of all roads, and await further orders. Two sections of the Divisional Cavalry will act under the orders of Captain A.

Reports.—5. The General Officer Commanding will march with the Advanced Guard, where all reports will be sent.

X.Y.Z., *Brigade Major*,

40th Infantry Brigade.

Issued with "March Table" at 5.30 a.m.

No. 1 copy to officer commanding 1st Hussars, by Captain K and by cyclist.

Duplicate, cyclist orderly.

No. 2 copy to "A" Squadron, Divisional Cavalry, by orderly.

No. 3 copy to 50th Brigade, Royal Field Artillery, by orderly.

No. 4 copy to 40th Infantry Brigade, by orderly.

No. 5 copy to Captain A, Army Service Corps, by orderly.

No. 6 copy to Colonel B, 2nd Sussex Regiment, by orderly.

*March Table.*Starting point—Road junction $\frac{1}{4}$ mile North-East of point 418.

Unit.	Hour of start.	Detail.	Route.	Instructions.
1st Hussars ...	...	...	Ballymore Eustace, Blessington	To be clear of Ballymore Eustace at 7.30 a.m.
Squadron Divisional Cavalry (less $2\frac{1}{4}$ troops)	...	1 troop ...	Dunlavin, Poulaphuca	To act as Right Flank Guard.
		1 section ...	Old Kilcullen, Harristown, Donode	To act as Left Flank Guard.
		2 sections ...	...	To report to Captain A, A.S.C., at 8.30 a.m.
<i>Advanced Guard</i>	...	...	Gormanstown, Ballymore Eustace, Blessington	...
Colonel B, 2nd Sussex Regt. 1 troop Divisional Cavalry 2nd Sussex Regt. 1 section R.F.A. 1 troop Divisional Cavalry	...	...	"	At disposal of G.O.C. Marches in rear of A.G.
<i>Main Body in order or march</i>	7 a.m.	...	"	...
Colonel A, 1st Munster Fusiliers 1st Munster Fusiliers 1st Royal Highlanders 40th Bgde. R.F.A. (less 1 section and ammunition column) 2nd Rifle Bgde. (less 1 company) Ammunition column				
<i>Rear Guard</i> ...	...	...	"	...
Captain A, 2nd Rifle Brigade 1 Section Divisional Cavalry 1 Company 2nd Rifle Brigade				

Issued with Operation Order No. 1,
5.30 a.m., 16.12.11.

(B) The orders would be issued as follows :—

The General Officer Commanding detachment, on receipt of his orders, and having sent preparatory orders to the 1st Hussars (through General Officer Commanding 7th Cavalry Brigade), and to the remainder of his detachment, as to the probable hour of marching in the morning, would proceed to write, or dictate "special instructions" for the officer commanding 1st Hussars, pending the arrival of any other officers whom he might wish to interview.

Owing to the distance to Kilcullen it would not seem desirable for him to request a personal interview with the officer commanding 1st Hussars, as this officer would require time to think out his plans and to arrange for his march in the morning.

For this reason, and owing to the fact that he would have a particular mission to carry out, the General Officer Commanding would convey his orders to him by means of "special instructions," which it would not be necessary to embody in the operation order for the detachment.

These instructions would be "secret," and should include full information about the enemy and as to the movements of our own troops.

The Operation Order, which would be issued later, need only include such information about the movements of the 1st Hussars as would ensure such mutual co-operation as is possible and as would eliminate as far as possible any risk of collision between them—*e.g.*, in foggy weather.

A copy of the special instructions to the 1st Hussars might be sent to the officer commanding the 40th Infantry Brigade in order to acquaint him fully with the general plan.

A copy of the Operation Order would also be sent to the officer commanding 1st Hussars in the morning, so that he might also be fully informed of the operations of and instructions to the main body of the detachment.

Discussion.

1. Method of issue of orders.

Field Service Regulations state :—"If detailed orders cannot be issued till late in the evening for early operations next day, great inconvenience will often be prevented by the issue of a preliminary order notifying the time of assembly or of starting. In order to avoid disturbing the rest of subordinates it may sometimes be advisable, especially when the force is widely scattered, to confine orders to sufficient instructions to enable units to arrive in correct order at the starting point, at an appointed hour, and to issue the more detailed orders to commanders next morning." The General Officer Commanding can then quietly consider his problem and discuss it, and the Staff have time to frame the orders. A preliminary order should therefore be issued notifying each unit concerned that it is

to march at 7 a.m. and to move to "Road junction $\frac{1}{4}$ mile North-East of point 418," where it will receive orders for the march. It is to be noted that this is necessary because the troops are at present under orders to march at 8 a.m. (see General Idea).

2. More clearness and brevity are wanted in writing orders :—

(a) In expression.

(b) In writing.

As regards (a) there is a tendency to use vague phrases and not to be definite and precise.

Orders often do not say unmistakably "what you want done." It is necessary to adopt a clear, almost curt, style, and to use as short sentences as possible.

As regards (b), paragraphs and columns are often jumbled up anyhow and the margin is crammed with figures and letters. In fact, the use of the margin, though very prevalent for examination purposes, is in reality quite unpractical when orders are written in a note-book and have to be read by tired officers in a bad light, and leads to great confusion.

3. In allotting the duties to the cavalry, the following considerations might have come into the commander's mind :—

"Can the enemy interfere?" Yes—the hostile cavalry at Glencree Reformatory can reach Blessington (15 miles) and push on South of the River Liffey, viâ Ballymore Eustace (18 miles) during the morning of the 16th December.

"How can the column be guarded against the enterprise of their patrols?"

By the use of the Divisional Cavalry.

But this would not give sufficient warning to enable the whole force to form up if the enemy appeared in strength.

Therefore more *time* is required and more *space* must be ensured.

"How can this be done?"

By sending other cavalry forward 7 to 9 miles, which distance would ensure the arrival of information in ample time to make the dispositions, issue the orders, and deploy the force from column of route, in case of meeting the enemy. In fact, one feels here the necessity which is the foundation on which the subdivision of the duties of cavalry is based, viz., the necessity for protection and the necessity for information.

Divisional Cavalry are required to guard and scout in the immediate neighbourhood of the infantry, and they should not therefore be despatched *en masse* on some distant mission as one usually sees done in our army. Their duties are laid down in Cavalry Training, Section 144 (last para.) and in Field Service Regulations, Section 65, as follows :—

"The Divisional Cavalry acts under the direct orders of the Divisional Commander. Its duty is to assist the infantry in the

(1717)

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immediate protection of the advanced guard, flank guards and rear-guard, and outposts; to maintain connection with the protective cavalry and neighbouring columns, to furnish escorts, orderlies, despatch riders and facilitate intercommunication generally."

In the Operation Orders, given here as a solution, these principles of the employment of the Divisional Cavalry have been kept in view.

One troop acts with the advanced guard; 1 troop acts on the right flank as being the flank most exposed; 1 section only is employed on the left flank; 1 section with the rearguard; 2 sections are detailed for the train, which is marching as a separate body, and finally 1 troop is retained at the disposal of the General Officer Commanding to meet unforeseen eventualities.

From this it will be seen that the duties of Divisional Cavalry entail that this body must usually be considerably broken up, and that the principle of concentration which applies quite soundly to "strategical cavalry" cannot be made to apply equally to "Divisional Cavalry." These facts are not usually recognized either in problems on paper or in operations with troops.

Infantry marching independently always require some cavalry with them. Any unforeseen situation may arise which would demand some local scouting for them. Let us suppose the advanced cavalry becomes heavily engaged; it is most important that the infantry commander should have some small force of cavalry with him to clear up the situation for him as he arrives on the battlefield. He cannot trust to being fully informed by troops and by commanders already engaged. Consider the case of the 38th Brigade at Rezonville, the 16th August, 1870. This brigade was a part of the 10th Corps and arrived on the battlefield in the vicinity of Mars la Tour at a moment when the situation of the Prussians appeared to be critical. It was at once ordered, when still some distance away, to attack the right flank of the French in order to relieve the pressure and stop their advance. But the orders received were not very clear and left its commander in ignorance of the exact position of the French right, which he was to attack.

Crossing the road near Mars la Tour the brigade advanced North-East against what was thought to be the position of the French right, and which the latter had previously held, but from which they had retired. The commander of the brigade having already detached all the cavalry attached to him, had no means of clearing up the situation, or of discovering the real situation of the French. Advancing in ignorance, the brigade was suddenly fired on from the left flank. Swinging up to meet this attack and in total ignorance of the force in front of them, the brigade was hurled against vastly superior forces and was annihilated as a fighting force in a few minutes.

Much of these disastrous consequences would have been avoided if the commander of the brigade had known how to employ his

Divisional Cavalry, and had despatched several patrols to inform him what places were held by the French, what places were held by the Germans, and what places were clear of all troops. He would then have had a much clearer insight into the true situation.

4. The mission of the advanced, independent, and other cavalry is normally to gain information for the commander. *He* therefore is responsible for directing his cavalry on the points from which he requires information, negative or positive. The orders to the cavalry therefore should normally take the form of asking for definite and precise information from certain localities.

Let me quote some foreign authorities on this point :—

"Cavalry is the instrument of the commander. It is *he* who causes it to act, and it provides him only with that which he asks of it. There is perhaps no part of the army which feels the influence and expresses itself so clearly, if the General has clear ideas, and a firm and precise intention. It is directed at any given moment in a definite direction, in order to clear up certain well defined points, of which knowledge is required in order to confirm, or to put aside, such and such an hypothesis." ("Les Transformations de la Guerre.")

And again—

Colonel Grandmaison, in his pamphlet "Deux Conférences," says :—

"The study of the employment of cavalry should, it seems, be based on the following principles :—

"It is essentially not a question of the automatic working of an agency charged with a vague mission of protection and reconnaissance. Cavalry is an instrument placed in the hands of a commander with the definite object of obtaining for him the information he needs, and of protecting him at the spot where, and at the moment when, he wishes to be protected.

"To determine the information which he needs and the protection he judges necessary, constitutes in fact the first action of a commander ; it is by no means the least, and in considering it a commander must make it an absolute rule always to have some definite intention.

"The continual failure, one may almost say the non-existence, of our cavalry arises from different causes, but the principal one is that no one takes the trouble really to study how to use it. It ought, we must repeat, to be an instrument placed in the hands of the commander, and it is for him to employ it, not with vague and indefinite missions but with exact and definite tasks."

For instance—

Reconnaissance.—The commander of a force knows, or should know, himself what information is indispensable to him to select and carry out his march against the enemy. He must definitely ask this information of his cavalry.

The lack of definiteness in giving orders to the cavalry is the real cause of the paucity of the information supplied by our independent cavalry on manoeuvres. Commanders usually take care not to tell them exactly what information they require them to get, and but too often tell them how to set about it.

Every time a commander will take the trouble to express to his cavalry his need of finding the enemy by definite missions to definite localities, he will most certainly get the information. The simplest form of asking for it is always the best.

(i) "Is the enemy at . . . ?"

"The information to be sent before such and such an hour to such and such a place."

(The same question can be demanded about another series of places according to necessity.)

(ii) "Explore in such and such a direction as far as such and such a place."

Or, "until you meet the enemy."

(iii) "Reconnoitre in such and such a direction, keeping within such and such an area," &c.

Two characteristics which sometimes prevent these questions being put are intellectual laziness and lack of character. It requires real moral strength to say definitely what information is required, for before a commander knows it he must know what he intends to do. Generally he is content to give orders with such phrases as—"Protect my front and locate the enemy," with added advice as to how it should be done. But the definite information that is required is often avoided. At the conference, if things have gone wrong, it is the cavalry who are blamed—"They were told to find the enemy, and it is their business."

In the present case the questions which the General Officer Commanding would like to have answered are the following :—

Are the enemy who were at Bray :—

(1) Moving West on Naas—in order to attack the right flank of our army, and at the same time to get into closer touch with their own army.

Or (2) Moving South-West through Blessington in order to attack the right flank and rear of our army and so attempt to paralyse our further advance, by a more daring and extended movement ?

In the orders given an attempt has been made to be—

(a) Brief.

(b) Definite, clear, and precise.

(c) To direct the cavalry in such a way as to gain the particular information required.

Should the enemy be moving rapidly and to the West, reconnaissances pushed on Rathmore would clear up that point.

If he is moving South-West, reconnaissances on Blessington-Poulaphuca would discover his presence.

If he is moving slowly and in a cautious, hesitating manner, he would be met further North. Therefore reconnaissances pushed out later on to Brittas would discover if he were moving West, and reconnaissances on Kilbride and Kippure House if he were moving South-West.

At the same time, for carrying out the General Officer Commanding's mission, it would not be necessary to have the information of the enemy an unlimited time in advance. It would be sufficient if the cavalry reconnoitred two to four hours' march in advance. This would ensure that the detachment had sufficient time to deploy for battle or to alter the direction of its movement if necessary.

This was legislated for in the orders by fixing the time of the cavalry to be clear of Ballymore Eustace. It would be useless to send them on in the middle of the night. Although night work is often necessary, it is usually only to maintain touch with the enemy at the halt, or in pursuit. Horses should if possible be rested at night.

5. The following points also arise :—

- (i) *In writing orders*, information about one's own troops should be sparingly given and should be confined to that which really concerns the command (see Field Service Regulations, Section 12 (2).) In any special and secret instructions more detailed information may be allowed.
- (ii) *The train*. It would be better in this case to march the train independently and at a later hour than the column, as the presence of the train on the heels of a force entering on a battle may be found a considerable drag.
A few mounted men should be attached for scouting purposes. There are sufficient armed personnel with the train for defensive purposes against small hostile raids, but of course these men must be properly organized and strict discipline maintained; extra detachments to guard the train, a secondary object, should be sparingly given, while the primary object—namely, the defeat of the enemy—is in view.
- (iii) *Communication*. It is the brigade signalling officer's duty to establish communication whenever and wherever possible. It is unnecessary to lay down orders to this effect. Operation orders should be brief, and contain nothing which everyone is not required to know. Under this heading, however, any special arrangements made by superior authority may be mentioned for the benefit of brigade or regimental signallers.

PROBLEM No. 2.

(In continuation of No. 1.)

General Idea.—

The same as No. 1.

Special Idea.—

(i) On approaching the woods $\frac{1}{2}$ mile West of Russborough House ($1\frac{1}{2}$ miles North-East of Ballymore Eustace) about 7 a.m., 16th December, the officer's patrol, which had preceded the main body of the 1st Hussars, is fired upon.

(ii) On the arrival of the regiment, half-an-hour later, a hostile troop retires from these woods towards Blessington. It appears that there are at least 200 dismounted men in and about this village.

(iii) At 8 a.m. three or four hostile squadrons are observed by a patrol to be moving at the trot in a South-Easterly direction by the road leading from Blessington towards Lackan.

The above information is transmitted to the General Officer Commanding the detachment, who receives it at 8.45 a.m.

(iv) By the time the main body of the detachment arrives in the vicinity of Russborough House, the situation has not changed, but the dispositions then taken by the General Officer Commanding caused the enemy to evacuate Blessington, whence about a squadron and 2 companies of cyclists retired towards Brittas.

Discuss.—

(A) The dispositions taken by the 1st Hussars on finding Blessington held (*vide* para. ii).

(B) The further dispositions ordered by the General Officer Commanding the detachment on receipt of the information he received at 8.45 a.m. (*vide* para. iii). The head of the main body at this moment had reached point 451 (2 miles North-East of Gormanstown, *see* Map I).

(C) The dispositions taken by the General Officer Commanding the detachment (para. iv) at Russborough House for the attack on Blessington. The situation is as follows :—

Points 695 and 931 (1 mile West by North of Blessington) are clear of the enemy. The latter is holding (i) corner of fence and belt of wood ($\frac{1}{2}$ mile North-West by West of Blessington); (ii) the edge of the same belt of wood up to the outskirts of Blessington; (iii) South and South-Eastern edges of Blessington.

(D) The orders which should be issued for holding Blessington after its capture, and for carrying out the mission assigned to this detachment (*vide* para. iv above, also para. iii, Special Idea, No. 1).

Discussion.

1. It is worth considering what are the duties of the officer's patrol when it finds its way blocked at Russborough House. These would be :—

- (a) To send back information to the regiment in rear. But when? *Not at once*, on being fired on.

The officer should wait a little in order to clear up the situation somewhat further, and then send back fuller information. He will thus economise despatch riders by not sending a man off and then finding it necessary to send a second man a few minutes later in order to supplement the information of the first. This is a point senior officers must impress on subalterns and sergeants.

- (b) To clear up the ground towards the flanks.

Here a couple of scouts might be sent to the high ground $\frac{3}{4}$ mile to the North, and a couple more to the Southern corner of the wood to the right. An attempt must be made to gain more information, and sitting down, inactive, cannot be tolerated.

It is essential always to impress on young cavalry officers and sergeants the vital importance of *activity and enterprise* in all their work.

2. The next problem that would arise in the course of the problem would be the action of the officer commanding the cavalry regiment when he arrives, with his advanced guard, near Russborough House. The officer's patrol should be able to enlighten him considerably on the situation. He might be able to tell him where the enemy *is*, and where he is *not*—but not his strength. Let us suppose that the officer commanding the cavalry regiment determines to manœuvre by his left, and seize the high ground there (reported unoccupied).

There are two points, however, to be borne in mind :—

- (a) The danger of moving there *unless* he covers his right flank from a sudden offensive on the part of the enemy.
(b) The danger of merely detaching 1 squadron.

This latter danger is much greater in open country, because the country does not lend itself so much to defence and the enemy can attack suddenly mounted, this method of action being always far more rapid in its results than fire action. If a squadron only is detached, say a mile off, when you are in the presence of the enemy, of whose strength you are largely ignorant, it may find itself suddenly attacked by several squadrons and ridden over before the remainder of your force can come up.

This fact emphasizes one of the fundamental principles of handling cavalry in all shock action encounters, *viz.* :—(i) Supports and reserves must always be close enough to support immediately any attacking line ; and (ii) they must also be *wide awake* and *ready* to act. Therefore, if a turning movement is decided on, the main body should be moved in close support of the troops employed on it,

leaving only a sufficient force to cover the flank during the move.

These considerations will be found to arise again when we study the action of the cavalry regiment in front of Blessington.

3. The next point that the situation brings forth would be—How would the movements of the hostile squadrons moving to Lackan affect the action of the officer commanding the 1st Hussars? He should chiefly be guided by his mission, which was one almost entirely of reconnaissance on certain definite points. Did the enemy's action interfere with this? No.

But it was necessary to do two things :—

- (a) Report quickly to the General Officer Commanding of the detachment, because the presence of hostile squadrons at Lackan was a direct threat to the right flank of the column.
- (b) To despatch an officer's patrol to follow and watch these hostile squadrons and keep the General Officer Commanding of the column informed of their movements.

Any larger detachment is to be deprecated as tending to weaken the cavalry in the execution of its main mission, and engaging it in the pursuit of a secondary objective. A larger detachment would also have been unnecessary, as an officer's patrol should have been sufficient to follow and watch this force. A patrol does not always require special support when it is not far from its main force. The distances over which messages have to be sent are not great, and as there was no question of pushing through or pushing back any covering force or hostile screen, but merely of observing the movements of a small hostile force, a special support would not be necessary. Although the principle of properly supporting patrols is perfectly sound, officers must guard themselves from any tendency to become pedantic in its application and from despatching "contact squadrons" on every occasion that requires the despatch of an officer's patrol. Every situation in war must always be judged on its merits, and not decided on *rules*.

4. On arrival in front of Blessington what action should the officer commanding the 1st Hussars decide on? (Problem 2, A.) What is his mission? To clear up the situation.

Now, however, the faults of his orders are brought to light, and this gives us a useful lesson of the difficulty of framing orders to convey what a commander means.

It shows how easily one careless expression in orders may mislead. Here in his orders, para. 4 (b), it was stated :—

"Your mission is—

"(b) To secure Blessington and hold it until my detachment arrives."

The officer commanding 1st Hussars is distinctly told "to secure Blessington." Now when these orders were drawn up it was not intended to convey that the cavalry were to fight for Blessington, if it was held in any force.

What was intended to be understood in the instructions to the Hussars was that :—

- (i) Information was wanted of certain definite points.
- (ii) That the cavalry, if they could occupy Blessington, were not to push on further to an indefinite distance in force but were to await the arrival of the infantry, taking the necessary steps to cover their approach, while sending on patrols only to certain other definite points.

It would have been better if para. 4 (b) had read as follows :—

Your mission is—

- (b) To cover the arrival of the column at Blessington from the North, North-East, and East.
- (c) Having done so, to report further, &c.

There is no doubt that the order to "secure Blessington" would lead some officers to attack it at once.

There are at least 200 rifles posted in the village. To turn them out by assault, without artillery support, would be a very serious task for a regiment of cavalry; it would have led to isolated action (always to be avoided), and might have ended in a disaster to the cavalry if the enemy had any larger forces in support, of which at present the cavalry commander had no information.

The situation required that the cavalry commander should confine himself to :—

- (i) Further reconnaissance, so as to help his chief as much as possible on his arrival.
- (ii) Attempting to turn out the enemy by a manœuvre, by a threat rather than by a direct attack.

In order to translate these generalities into action, the officer commanding 1st Hussars might have given the following orders :—

- (1) Lieutenant A and 4 men will reconnoitre along the bank of the Liffey as close to Blessington as possible.
- (2) Lieutenant B, 1 sergeant and 8 men will reconnoitre points 695 and 931—and then,
 - (a) Towards the Northern end of Blessington.
 - (b) Towards Downshire covert.
- (3) Two troops, advanced guard, will hold the lower slopes of Kilmalum opposite Blessington, with their right on Russborough House road, and cover the right flank of the regiment, as it moves up to point 931, while being prepared to go forward and occupy Blessington, should the enemy evacuate it.

Should the enemy continue to hold Blessington they will rejoin the main body when it has reached point 931.

- (4) Remainder of regiment and the machine-gun section with 1 troop as advanced guard will move under cover of the Southern slopes of Kilmalum, via point 695, to point 931.

From point 931 fire can be opened on the enemy's flank. If he is weak and fears being cut off, he will go. If he is strong he will probably stay. But in any case the situation will be more or less cleared up.

The further action of the regiment must depend on circumstances, but if the enemy is found in strength in Blessington it will *not* be wise to move the regiment as a whole much further round the enemy's flank than point 931.

It is no good moving on under the specious excuse of gaining further information, and then not being able to transmit the information back, because the cavalry itself is cut off.

Probably the action by the officer commanding 1st Hussars here outlined would have met the case and would have been in accordance with his mission.

5. Problem 2 (B). How should the General Officer Commanding act on hearing of the move by hostile cavalry on Lackan? What does it portend?

The first consideration is that the hostile squadrons may now be approaching Humphryston Brigade and that they can attack the right flank of the column as it reaches the River Liffey at Ballymore Eustace.

An attack by such a force, 200 to 300 rifles and probably machine guns, on the flank of the column of route would be serious, if no proper steps are taken to meet it, and might paralyse the further action of the detachment and thus prevent or hamper it in the execution of its mission, which is to protect the right flank of the 5th Corps against the hostile force of all arms reported moving from Bray.

The regiment of hostile cavalry itself is evidently *not* the main force of the enemy moving from Bray, though it may form a small part of it.

It is possible that at this point certain mistakes may be made.

- (a) Officers may become unduly alarmed for the safety of their own force and make far greater detachments than the situation demands.

Or (b) They may credit the enemy with improbable intentions and rashness, for example, a wild raid against the flank of the 5th Corps; they may exaggerate its importance and be led into making unnecessarily large detachments, and in eccentric directions.

But we must always think of the enemy's difficulties and dangers as well as of our own. We must not take counsel of our own fears only—let us remember the enemy's and take courage. When we come

to consider this problem from the enemy's point of view, the futility of a movement on his part, completely round the detachment's rear, becomes evident.

If the hostile squadrons thought of attacking the flank of an Army Corps, their force was far too small to cause the least alarm.

If they were merely seeking information, the chances of transmitting any in time to be of the least value were most remote, considering that the country behind them in the neighbourhood of Blessington would be held by a large hostile detachment of our troops, thus blocking their only roads for transmission except by the long detour of the Wicklow Gap; and, whatever their object, the risk of the regiment finding itself eventually cut off and surrounded was immense.

Another faulty tendency is to guard against any advance of the enemy from every direction by mere passive defence, and to spread troops out "on positions" in a cordon. This is the worst method of opposing an enemy. It may succeed in blocking a few hostile patrols, but directly the enemy advances in force the cordon system breaks down.

Therefore the only immediate consideration for the General Officer Commanding, on hearing of the hostile cavalry moving towards Lackan (beyond keeping a watch on them, which has, we have presumed, already been done by the officer commanding cavalry regiment), should be to take the proper and sufficient steps to guard his own right flank.

What should those steps be?

The head of the main column is just passing Kennycourt House at point 451. The advanced guard would be about a mile further on, passing Boleybeg House. The General Officer Commanding is with the advanced guard. It would be sufficient, in order to comply with the demands of the tactical situation, if he detached the 2 leading companies from the main guard with a sergeant and 8 men of the divisional squadron (of which 2 troops are marching with the advanced guard) to protect his right flank.

He might give them the following orders:—

"Three or 4 hostile squadrons are reported as having left Blessington at 8 a.m., moving towards Lackan. They can attack the right flank of the column during its passage of the River Liffey.

"Officer commanding 2nd Sussex Regiment will detail 2 companies to move via Whiteleas House and point 527, towards Poulaphuca Bridge in order to cover the right flank of the column.

"Officer commanding 2nd troop divisional squadron will place 1 sergeant and 8 men at the disposal of the officer commanding these 2 companies.

“The 2 companies will rejoin the main column, moving via Russborough House, as soon as the rear of the column has crossed the River Liffey. The officer commanding troop on the right flank has been directed to place himself in communication and act under the orders of the officer commanding flank detachment for the present.”

6. Problem 2 (C). The next problem brought out in the situation is the organization for the attack on Blessington.

The first point to be emphasized is that one must be careful not to expect too much from the cavalry; one should not expect them to tell one everything. They can only tell as a rule what places are held, or are not held, and make a rough estimate of the numbers that the enemy has shown in the firing line. Further and full information can only be gained by fighting.

Here some officers may be inclined to deal with the situation as if the village was certainly held by only 200 rifles. But in war one would not know how many were in reserve, nor at what moment the enemy might receive large reinforcements.

Therefore, in organizing this attack the General Officer Commanding would be wise to get all his forces ready and in hand for instant use if required. To leave them strung out over a considerable distance and to launch only small bodies to the attack unsupported, might lead to a succession of isolated attacks, which, even if eventually successful, would be wanting in energy, would entail far heavier losses than necessary, and might lead to a disastrous repulse.

Field Service Regulations, Section 68, lays down that the advanced guard will often fight and drive in the enemy's advanced troops. An immediate attack by the advanced guard here might well be justified, but only on condition that the rest of the column continues to march on, to close up, to concentrate so as to be ready to support the advanced guard without delay, and that the guns are rapidly brought forward to positions of readiness.

It would be a misapplication of this energetic use of an advanced guard were the main body to be halted in column of route a mile or two in rear, were the guns not sent forward, and were the advanced guard to make an isolated attack with all its dangers.

Another erroneous tendency is merely to indicate in a very general manner the method of attack. It must be remembered that when it comes to the command of troops the expression of generalities is not sufficient; orders must be given in clear precise terms to the different forces that have different rôles to carry out, and the time required for their execution must be taken into account. To do this properly is one of the most difficult parts of the art of command, and it can only be arrived at, like most other things in this world, by previous study and practice; it is one of the objects of these exercises to practise officers in issuing such orders.

Given the situation in the scheme, and the ground, as seen on the map, only one general plan of attack seems indicated, viz., to throw the bulk of the force to the high ground on the left (points 695 and 931) already occupied by the cavalry and then to make a concentric attack on Blessington.

But how long will it take to prepare for such an attack ?

The column is at present marching on the road.

The advanced guard—

1 infantry battalion (less 2 companies detached)	..	..	540
2 guns	..	..	120
2 troops	..	..	50

710 + 1 mile distance.

The main body—

3 battalions	..	..	1,980 yards.
R.F.A.	..	..	1,165 „

3,145 „

Before the rear of the main body can get up to the rear of the advanced guard, say at point 632, it will have to cover roughly $2\frac{3}{4}$ miles, or 55 minutes' marching.

Before the rear of the main body could reach point 695—another $1\frac{1}{2}$ miles—another 30 minutes would be required.

This gives some idea of the time troops take to get about. In order to ensure any simultaneous effort, account must be taken of these facts.

The orders for this attack might be somewhat as follows :—

“(1) Blessington is occupied by the enemy.

“The force will attack.

“(2) The 2nd Sussex Regiment (advanced guard battalion) will occupy the lower slopes of Kilmalum ready to attack the South-Eastern face of Blessington and the belt of trees to the North-West as soon as it receives the order.¹

“Until this moment it will cover the move of the rest of the force towards point 695.

“(3) The Artillery Brigade will at once take up a position of readiness North of Glenmore¹ from which it can fire on Blessington and towards Downshire cover, so as to cover the move of the main body if necessary, and eventually to support the attack.²

“(4) The 1st Munster Fusiliers (leading battalion—main body) will move viâ point 632 to point 695. Thence it will attack

¹ These points would be pointed out verbally.

² The guns can trot up past the two leading battalions as soon as required.

the North-Western edge of the belt of wood North of Blessington.³

- “(5) The 1st Royal Highlanders and the 2nd Rifle Brigade will follow the 1st Munster Fusiliers and assemble under cover of the spur $\frac{1}{4}$ mile South of point 695.
- “(6) The divisional cavalry will place 1 troop on Burgage Bridge, patrolling to the South-East, and 1 troop on point 1094, with patrols to the West and South. The remainder as soon as possible will report to the General Officer Commanding.
- “(7) The 1st Hussars will take up a position of readiness near Glending Covert ready to co-operate in the attack of the 1st Munster Fusiliers, and will push patrols (i) towards Rathmore; (ii) North along the ridge towards Hillsborough House.
- “(8) General Officer Commanding will move to point 695 with 1st Munster Fusiliers.”

In issuing these orders an attempt has been made to comply with the following principles :—

- (1) To cover the move and the assembly of the whole force with the advanced guard and guns.
- (2) To obtain the benefit of surprise, of rapidity, of a flank attack, and of superior numbers, by moving the main body of the force by a covered approach to point 695, as near to the objective of the attack as possible.
- (3) To avoid any isolated action and ensure that all attacks are simultaneous, and that they should be carried through by continuous pressure and with the utmost energy, by placing the supports close up and ready, the force sufficiently concentrated, and the attacking troops opposite their objective before any attack is launched
- (4) To ensure the close combination of all arms.
- (5) To ensure security in all directions.
- (6) Although the whole force is in hand and ready for any eventuality, it is not all deployed prematurely; half of it is in reserve.

As soon as the 1st Munster Fusiliers was ready to advance to the attack, orders would be sent to the 2nd Sussex also to attack. The attack of the 2nd Sussex and 1st Munster Fusiliers could be launched in about 1 hour from the moment that the head of the advanced guard (2nd Sussex) reached point 632. Up to this moment the rôle of the 2nd Sussex would be that of an advanced guard, covering the deployment and the manœuvre of the main body.

If the enemy had any advanced posts in front of Blessington, it might take the advanced guard battalion (the 2nd Sussex) an hour

³ These points would be pointed out verbally.

to reach the position indicated in the orders for the attack—from which it was to advance to the decisive attack simultaneously and in conjunction with the 1st Munster Fusiliers.

Problem 2 (D). The situation given in the scheme supposed that the enemy in Blessington, who turned out to be only some 200 or 300 cavalry and cyclists, had retired on Brittas, without waiting for the attack to be launched.

What is now the main consideration ?

The enemy who were about Bray, and whose strength and position is still unknown, can scarcely attack the flank of the 5th Corps except by passing through Blessington. The important thing now is to deny the passage of Blessington to any important forces of the enemy, while keeping a watch on the roads turning Blessington on the South through Lackan, and on the North through Rathmore. But this should not be done by scattering the detachment in a cordon round the village, by tying the troops to various positions, or by guarding every road.

In reality the question resolves itself into establishing the detachment at Blessington ready to move and meet the enemy with all forces united, wherever and whenever he should appear, meanwhile letting the men feed and rest.

The enemy knows of the presence of the detachment at Blessington. He must not be allowed therefore to bring up guns and open fire on our billets. It would be necessary in consequence to push companies out $1\frac{1}{2}$ to 2 miles along the roads so as to include all ground from which guns could open fire on the village. A support to these companies on the North-East, which is the dangerous direction, might be detailed in the vicinity of 803 Hill, but under shelter if possible.

Beyond these companies, whose rôle is *resistance*, the cavalry would provide *observation*, by pushing out patrols who would remain out permanently. The exits out of the billets in Blessington should also be barricaded and small posts should be placed on them.

Directly the enemy has retired the 1st Hussars would push on, keeping touch with the enemy, but not carrying on the pursuit indefinitely. Their chief duty at the moment would be to cover the establishment of the force in Blessington.

The Hussars might take up a central position near Kilbride, with a troop or so at Oldcourt, and might push reconnoitring patrols towards Brittas and Ballysmuttan Bridge.

By 4 or 5 p.m., when the infantry posts were established, the main body of the Hussars would retire behind their line and go into billets if possible, so as to give the men and horses the maximum of rest and shelter.

The Divisional Cavalry would furnish the necessary standing patrols beyond the infantry outposts, and the main body of the Divisional squadron would billet near and under the orders of

the officer commanding the reserve of the outposts North of Blessington.

The Divisional Cavalry standing posts would during the afternoon to a certain extent certainly duplicate the work of the 1st Hussars, but the infantry outposts would not know exactly where the cavalry were, and they should make use of the means at their disposal to guard and protect themselves from surprise.

In issuing orders for the stay in Blessington, the indication of an alarm post for the whole force must not be forgotten. The hour by which the troops must be ready to start next morning should also be put in.

As regards the alarm post, every unit, squadron, battery, and regiment should have its own alarm post which all the men must know, and on which it assembles before marching to the general alarm post.

But these dispositions, though they would ensure the force from actual surprise, would not be sufficient. At any moment some new mission may be assigned to the detachment or the enemy may force a fresh situation on it. It is therefore necessary that the commander should be informed, so that next morning he may have a clear idea of the situation around him.

A patrol has already followed the retreating enemy. This must remain out in permanent observation. Another patrol must be despatched to Kippure House or beyond, in case the enemy advances from Glencree or Bray by the Sally Gap. A third patrol should move on Killeel, in case the enemy is moving due West to strike into the flank of our main army further North. All these places are selected because from each of them the information that comes in, negative or positive, will put aside or confirm some possible move of the enemy. These patrols must all remain in permanent observation, so that no hostile move can take place in any of these directions without being discovered.

Given the situation as it is, the outpost companies could billet in farms or houses, place them in a state of defence, and barricade the roads, merely pushing strong posts on a little distance in advance.

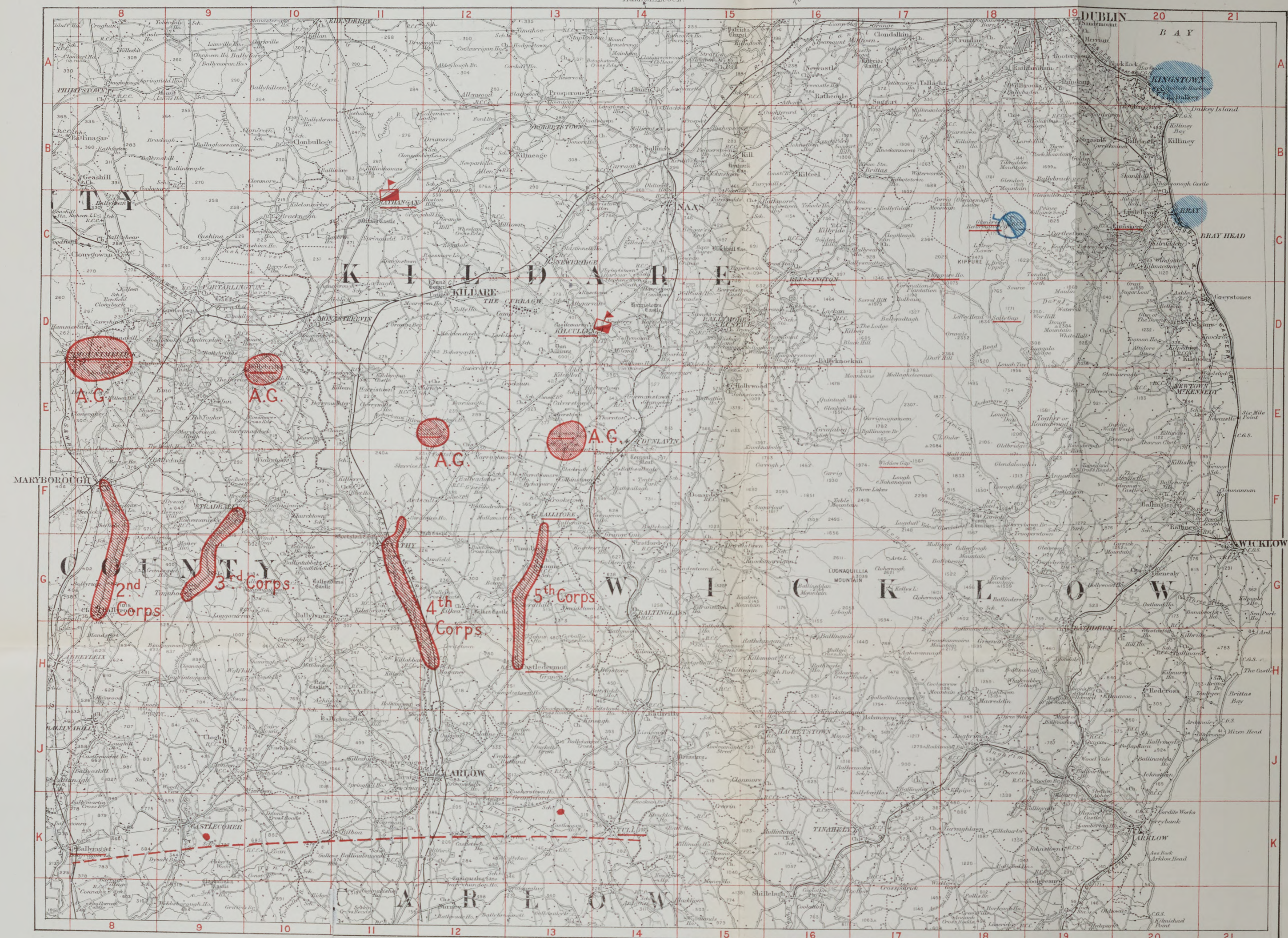
These dispositions are decided on in order to keep the force as much in hand as possible, and to retain its liberty of movement, its offensive power, and its readiness to strike as a whole. This is preferable to the occupation of positions with a view to mere passive defence, and also to the cordon system which attempts to guard equally every avenue of approach.

If the enemy advances from Brittas, the whole force can move out and meet it. Similarly if the enemy advance from Sally Gap South of the Liffey.

Blessington has been occupied as being the central point, from which the detachment can move in any direction. It practically

$\frac{1}{4}$ " Ordnance Map. Ireland

TRIM, & KILCOCK



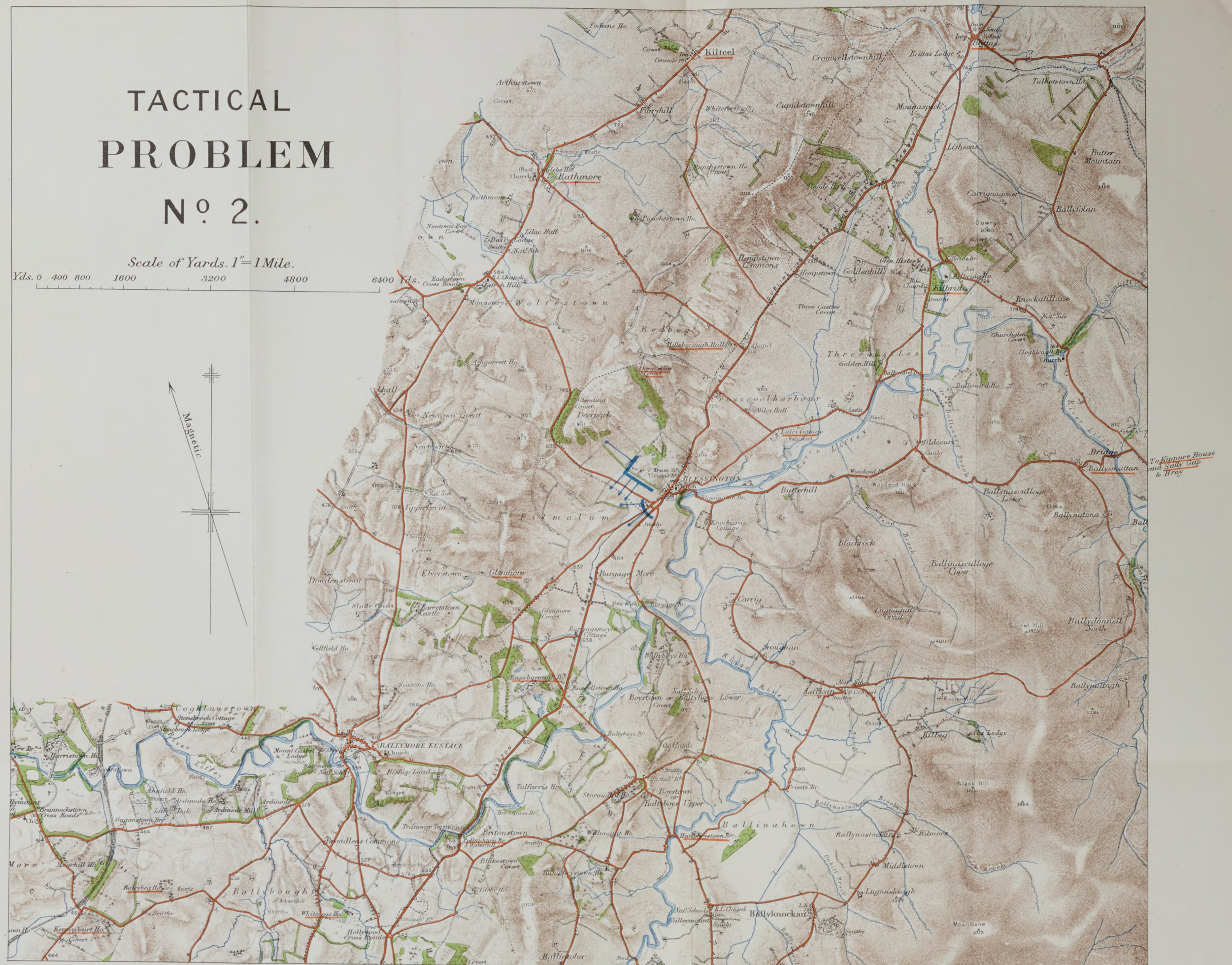
Ordnance Survey, Southampton, 1912.

AD
LE

1 Mile
to

TACTICAL PROBLEM Nº 2.

Scale of Yards. 1" = 1 Mile.
Yds. 0 400 800 1600 3200 4800 6400



Ordnance Survey, Southampton, 1912.

denies to the enemy all main avenues of advance against the flank of the 5th Corps. In Blessington again the force can get the maximum of rest and shelter.

Even in a strategically defensive mission, as is the one under discussion, it is necessary to guard carefully against the tendency to adopt tactically a rôle of mere passive defence. It is also necessary to avoid prematurely spreading out troops on positions, some of which may never be attacked, while others may be overwhelmed by superior numbers.

In offering these suggestions for the security of Blessington we must not see in these dispositions any rule or normal proceeding.

It is interesting to think out how different circumstances would affect the dispositions.

- (i) If it were known that no enemy were within 15 or 20 miles, a company or so, in the houses on the roadside within $\frac{1}{2}$ mile of Blessington would suffice, with the cavalry regiment, say at Kilbride, covering itself on the Brittas and Sally Gap roads.
- (ii) But if large forces were known to be at Brittas and Kilbride with a line of outposts about 2 miles South-west of them then the spurs North-East of Blessington would require to be held more strongly than has been suggested.

Here a whole battalion might hold the line point 725 (Brittas Road), Liffey Cottage—with another battalion in support on Hill 803. The cavalry patrols would remain in close touch with hostile outpost line, the main body being withdrawn behind the infantry outposts.

- (iii) Let us suppose there was merely a cavalry regiment in Blessington, faced with the situation described previously in (ii). It could offer no serious resistance. It merely requires sufficient warning to be able to retire. In this case the regiment would keep patrols in close touch with the enemy, a troop with the road well barricaded on the roads leading to Brittas, Kilbride, and South of the River Liffey, by way of supporting and covering the patrols if driven in. The squadrons billeting just South of and outside of the village should stand to arms before dawn.

From the study of these problems for the security of a force in Blessington, it can be seen that the circumstances of each case decisively influence the dispositions required, and that officers cannot rely on "rules."

War demands the application of sound principles and sound common sense to "concrete problems."

XVII.

THE CONCENTRATION OF SUPERIOR FORCE AT THE DECISIVE POINT.

CONSIDERED IN RELATION TO THE EMPLOYMENT AND TRAINING OF THE EXPEDITIONARY FORCE.

By CAPTAIN R. W. M. STEVENS, Royal Irish Rifles.

I.—SUPERIOR FORCE IN THE PAST.

IT is an axiom that success in war has always been the result of the concentration of superior force at the decisive point. Before considering how this superiority is to be obtained in the future, it seems desirable to glance back over some of the great wars in history to see how it was obtained in the past. In so doing the subject will be considered mainly from the tactical point of view, but it will not be possible altogether to eliminate strategy from the scope of the inquiry, for it is just in this concentration of superior force that strategy and tactics merge most completely the one into the other.

Although the systems employed by Napoleon naturally varied in each campaign, yet an examination of his strategy as illustrated in his career as a whole seems to reveal two main methods of action.

When he had reason to believe that numerical superiority within the theatre of war rested with him he struck with his whole army against the communications of his enemies, bringing them to battle under conditions in which success meant their annihilation. The campaigns of Marengo, Ulm, and Jena afford the best examples of this method.

When it appeared that his forces were numerically inferior he endeavoured to manœuvre from a central position, holding off one portion of the enemy with a small force and concentrating superior numbers against the remainder. He sought success by a series of victories brought about by rapid concentration now against one opponent, now against the other. The campaigns of 1796, 1813, 1814, and 1815 may be cited as examples.

Four points in this strategy demand special attention as bearing on the question of the concentration of superior force :—

- (a) Napoleon always practised the strictest economy of force, detailing the smallest possible number of troops to the secondary theatre and the largest possible number for use where the decision was to be won.
- (b) Whenever possible he took the offensive, though he often enjoined a defensive attitude on his subordinates in secondary fields. By directing his offensive so as to surprise his enemy he often gained great *moral* ascendancy over the opposing leader, thereby increasing the actual superiority of his own force.
- (c) He undoubtedly attached the greatest importance to the possession of superior numbers on the battlefield, his whole method depending on whether numerical superiority in the theatre of war rested with him or his enemy.
- (d) He always moved his army strategically concentrated, though such concentration did not preclude a certain measure of tactical dispersion. Thus, when acting against an enemy's communications he often separated his Corps to close all possible lines of retreat. But this was the result of careful calculation; he held that a single Corps well handled could maintain itself in the face of greatly superior numbers for a whole day, yielding ground if necessary. On this basis he arranged for his Corps to be within supporting distance of each other, took great care that commanders were kept informed of the whereabouts of troops to whom they could look for support, and enjoined the utmost vigilance on those commanders in closest proximity to the enemy.¹

But such dispersion had nothing in common with the movement of separate columns converging on the battlefield. He has left on record his objection to this method in sufficiently emphatic terms:—"It does not succeed in war because the two columns cannot act together and the enemy beats them one after the other."

Passing to the tactical aspect of the question. In an exceptionally interesting work, *La Guerre Napoléonienne—Les Batailles*, Colonel Camon, of the French General Staff, claims that in the vast majority of Napoleon's battles the same ideas as to the tactical employment of military force can be traced.

He states that at the very commencement of the action Napoleon decided, on strategical grounds, where his blow was going to be delivered. In order to prepare the way for it he directed a part of his army against the flank or rear of that portion of the enemy's line which he intended to break; when this turning or flank movement had begun to have its effect—and the effect Napoleon desired was often *moral*

¹ See in this connection Correspondance de Napoléon, Nos. 9,356, 9,357, 9,364, 9,372, in the Campaign of Ulm.

rather than physical—he suddenly launched a special body of troops against the pre-determined point, this decisive attack being supported by renewed efforts all along the front.

The troops allotted to the preliminary attack were as few as possible, though sufficiently numerous to engage the enemy closely everywhere, and they were very seldom reinforced. But Napoleon always kept a reserve in hand to meet the unforeseen and to complete the victory, such reserve being quite distinct from the mass held back to deliver the decisive blow.

Accepting the above theory—the reader who desires to test it cannot do better than apply it to the battle of Ligny, as, judging from his orders, Napoleon intended it to be fought—and bearing in mind other matters that are beyond dispute, the methods by which Napoleon sought and usually obtained superiority of force may be summarized as follows :—

- (a) Surprise of the opposing commander, both strategical and tactical, brought about by a vigorous offensive, this offensive enabling him to choose where the decision was to be obtained.
- (b) At or even previous to the beginning of a battle he formed a clear plan of how he intended to bring about a decision, and was thus able to post his striking force where it would be immediately available when required. This plan as a rule involved both frontal and flank attacks, the latter designed to assist the former, which was intended to be decisive.
- (c) The possession of numerical superiority on the battlefield, result of strict economy of force. He reduced detachments to a minimum, and took great care to prevent any portion of his army being overwhelmed while separated from the whole, while he endeavoured to deal with a numerically superior enemy in detail.

Characteristic of his methods are the great care he took to obtain accurate information, the efforts made to mislead his enemy, prolonged personal reconnaissance on the battlefield, and infinite pains to render his army the most efficient and mobile instrument possible.

Half a century of progress, bringing with it the invention of railways, the electric telegraph, and greatly improved weapons, elapsed between the Napoleonic period and that in which Moltke successfully conducted two great wars.

In 1866 the armies available were more or less equal in numbers, but the Prussians were much superior in educated leadership, in their staff, in organization, in armament, and in the training and fighting capacity of their troops. Moreover, the organization of the Prussian State allowed of the full development of all its powers for war.

Strategically the following facts call for notice. Moltke kept the strongest possible force for use in the main theatre, detailing a bare minimum for action against the minor German States. He endeavoured to take the field with a marked numerical superiority ensured by better organization and mobilization arrangements. Political exigencies, delaying the outbreak of war, deprived him of some of the advantages which he had worked for, but he still took the offensive and the Prussian armies advanced from bases far apart to concentrate in the enemy's country. This, too, in a terrain so suited to the action of a centrally situated force that not only were the armies for some days liable to attack in detail by overwhelming numbers, but the separate Corps of the Second Army ran great risk of being crushed piecemeal. Moltke was, however, able to keep the different armies informed of each other's progress by means of the telegraph, and to call on one to assist the advance of the other. Like Napoleon, he believed in the power of a portion of his army to fight for some time without bringing matters to a decision, and he correctly gauged the incapacity of the Austrian leadership, and the effects on it of his unexpected movements.

Even when the Prussian armies were closing with the enemy's mass, he still kept them apart until it was clear that the enemy was going to accept battle, and then he brought them on to the decisive field from different directions, winning the decisive victory of Königgrätz by envelopment although the numbers engaged in the battle were practically equal.

In 1870 the Germans had the same advantages in the education of their leaders, in their staff, and in their organization. But in actual fighting capacity at the beginning of the war the French were, individually, certainly equal, and perhaps superior, to their opponents.

Once more Moltke endeavoured, this time successfully, to bring superior numbers into the field as the fruit of better peace preparation. His strategical methods were not very dissimilar to those of 1866. He employed several armies on a wide front with a view to enveloping the enemy by a converging movement on the battlefield, this movement being regulated by means of the telegraph. In marked contrast, however, to his former methods was his anxiety not to expose any portion of his army to defeat in detail. His original plan, the envelopment of the French armies on the Sarre, came to naught, but his strategical efforts always directed to the same end finally resulted in complete envelopment at Metz and Sedan.

Tactically the battles of this period are principally remarkable for the comparative failure of the frontal attack and the success of enveloping movements, whether due to convergence or to extension of front. This was the natural result of improvement in weapons, battles being definitely decided by fire both of artillery and infantry, and no longer, as in Napoleon's day, by the shock of a mass of infantry

whose way had been prepared by the fire of skirmishers and massed artillery.

Yet the failure of frontal attacks was comparative only. They held the enemy to his ground, exhausted him, and prevented him from taking measures to meet effectually the decisive blow against the flank. In this way they did as much to facilitate the decisive flank attack as had Napoleon's flank attacks to prepare the way for his decisive blow against the front.

Equally important too are the solidarity and desire to give mutual support which were as conspicuous in the German Army as was their lack in the French. The anxiety of the different arms to assist one another, and the loyalty which made commanders march at once to the sound of the guns—the fruit of similarity of training—were always noticeable, and at Spicheren at least were directly responsible for that concentration of superior numbers which resulted in the successful outcome, tactically, of that day.

Summarizing the experiences of 1866 and 1870, superiority of force seems to have consisted in:—

- (a) Surprise of the opposing leaders brought about by the offensive, strategical and tactical.
- (b) The presence of larger numbers actually on the battlefield, the result of better peace preparation and organization and of strict economy of force.
- (c) Tactical employment of those numbers in accordance with the conditions of the time, result of a more efficient staff and of better trained troops.

There were certain notable departures from Napoleon's methods. Moltke fully realized the importance of accurate information on which to base his plans, yet we find in him a greater readiness to act on hypothesis. His misconception of the situation on the 2nd July, 1866, and on the 15th and 16th August, 1870, and the risks thereby incurred, illustrate the great danger of this. In addition, personal reconnaissance by the Commander-in-Chief before battle was notably absent. But in this connection it is at least arguable that the increased size of armies had rendered it necessary that decisions should be taken at a greater distance from the enemy than formerly, and that it was often no longer possible to wait for detailed information.

Gone also was that decisive act of generalship which chose the actual moment to launch to the attack a special body of troops till then held in hand. The direction of the attack might still be decided on at, or before, the commencement of the battle, but, except in so far as he could calculate how long troops would take to reach a certain point, the timing of the attack no longer rested with the Commander-in-Chief.

Passing now to the latest great war, that in Manchuria in 1904, certain peculiarities affecting the operations must be mentioned.

Throughout the Russians depended for all reinforcements and men and matériel on a very long, single line of railway. For many months the Japanese were operating with their communications overseas liable to interruption by the still existing Russian fleet. These facts prevented that immediate appearance in the theatre of war of the full strength of each Power which would usually be seen in a struggle between two nations in arms. Moreover, the theatre of war was so ill provided with communications that the opposing armies when in face of each other were in great measure tied down to the single line of railway which after Liao-Yang formed for both the main line of communications.

The first point calling for attention is that the Japanese pursued two objectives with equal determination, the capture of Port Arthur and the defeat of the main Russian Army. It is impossible to discuss here the rights and wrongs of this decision, but its effects will be touched on in due course.

For the rest, the war falls naturally into two periods. The first portion up to the concentration of the main armies prior to the battle of Liao-Yang, and the subsequent operations which included all the great battles.

In the first period the Japanese took the offensive. They employed several armies, and there was a distinct tendency in their strategy to bring these by a converging movement against the main Russian Army at Liao-Yang. Each army had to fight a series of actions, but each had been made sufficiently strong to ensure numerical superiority over the Russian forces immediately opposed to it, while the Russians were prevented from combining against any particular army by the synchronization of the movements of all the Japanese forces, both naval and military, which were controlled by telegraph from Tokio.

Tactically the battles of this period present the same general features. Success was won by envelopment. When, as at Taschi-Chao, the attacks were purely frontal, there was no penetration, and such success as there was was very incomplete.

In the second period there was little room for strategic manoeuvres; the armies were too close to each other.

Most noticeable are the efforts made by both combatants to obtain superior numbers. Despite the excellent organization in Japan for maintaining the strength of the armies in the field, numerical superiority in two of the three greatest battles of the war rested with the Russians. In these cases (Liao-Yang and the Sha-Ho) superior numbers on the battlefield did not result in superiority of force at the decisive point, but lack of numbers undoubtedly did limit the extent of the Japanese success. It is clear that had the Japanese been able to mask Port Arthur and to concentrate against Kuropatkin they would have had numerical superiority at Liao-Yang, and the

results of that victory, incomplete owing to lack of numbers, might have been as great materially as they were morally.

The general teaching of the whole war is that success is to that side that takes and keeps the offensive. The Russian failure at the Sha-Ho in no way detracts from the truth of this, for Kuropatkin's offensive lacked all resolution. The Russian right endeavoured to accomplish its task of holding the Japanese centre and left by making demonstrations with advanced guards behind which the main force entrenched in case the Japanese advanced. The Japanese seized the initiative; containing the attacks of the Russian left with small forces placed in very strong positions they advanced to the attack. Whereas the Russian attacks had lacked co-ordination, the Japanese made simultaneous and very desperate efforts against the whole line, and though Oyama's attempt to penetrate between the Russian armies failed, yet the success of a purely local envelopment of the Russian extreme right led to the retirement of the whole army.

The main point here as regards the concentration of superior force is that the mere fact that an army advances does not necessarily mean that it has the initiative and is taking the offensive. To do this the commander must be determined to impose his will on his adversary, and must so conduct his operations as to oblige his opponent to conform. It is the dominating will that determines the decisive point.

Summarizing the history of the war, superior force consisted in :—

- (a) Surprise and initiative, obtained by a vigorous offensive which forced the enemy to conform, and enabled the successful leader to determine where the decision was to be arrived at. Thus he could direct his forces early in the battle towards the decisive point.
- (b) An army better trained, and inspired with a supreme determination to succeed.

Though superior force was not synonymous with superior numbers, yet where numerical superiority was wanting success was incomplete.

Personal reconnaissance by the Commander-in-Chief, lacking in 1866-70, was physically impossible in Manchuria owing to the greatly extended battle fronts. And while, on the Japanese side at Mukden at least, we find the existence of a definite striking force (the Third Army) and of a small general reserve retained in the hands of the Commander-in-Chief, yet the latter could only decide the time of the decisive blow in days not hours, and the distance to be traversed by the reserve, when it was determined where it could best be employed, was so great that it arrived too late to produce its full effect.

Considering all the wars dealt with, certain factors stand out as constant in the efforts of the great commanders that secured for them superiority of force.

Prominent among these is numerical superiority. The first step towards securing this has been an organization which, by developing the full power of a nation for war, has enabled the maximum of armed men to be put into, and maintained in, the field.

Actually in the field, commanders have sought numerical superiority by a vigorous offensive which has secured to them the initiative and so enabled them to choose where the decision shall be won, and to direct on to this point the maximum of their own forces while reducing to a minimum the troops employed elsewhere. Indeed, this offensive is itself a factor used by the great leaders for the surprise and deception of their enemy.

Every real offensive pre-supposes a clear and definite plan resolutely carried out, but there has been a distinct development in the battle plan in recent wars for which the difficulties of reconnaissance and the increased extent of front are in great measure responsible. The commander has had to come to his decision and to issue his orders at some distance, both in time and space, from the field which he is no longer able adequately to observe in person.

Two more constant factors in success must be touched on. The decision has only been won by a vigorous offensive, and in almost every case the whole of the enemy's army has had to be engaged. Yet circumstances may allow of a portion of the enemy being occupied by a body of troops on the defensive, and, provided that the enemy's attacks are real and that he is fully occupied in making them, there are distinct advantages in this. For, by making use of ground and of entrenchments, troops on the defensive can often neutralize larger numbers than they could by means of an attack. Defensive fighting may be an integral part of the successful offensive.

Lastly, whenever a nation has been able to put into the field an army better trained than that of the enemy, particularly as regards staff and officers generally, and one fully interested in the result of the war, it has done much towards securing superior force.

II.—CONDITIONS OF OUR OWN PROBLEM, AND FIRST STEPS TOWARDS ITS SOLUTION.

From the above it seems that to ensure concentration of superior force at the decisive point we need :—

- (a) A national organization producing adequate numbers.
- (b) Skilful and resolute generalship to direct the troops thus provided.
- (c) Troops well trained, interested in the war, and imbued with a firm will to conquer.

It is quite impossible to deal with all the above in this paper ; any discussion of national organization is beyond its scope, while the subjects of generalship and training are so vast, embracing as they

do almost the whole art of war, that a few points only can be selected for treatment.

But before passing to these, as it is proposed only to consider matters dealing directly with the employment of our Expeditionary Force, it is desirable to indicate what employment is intended.

There are three main tasks which that force may be called upon to undertake. It may be needed to reinforce local troops in some outlying part of our Empire, to resist invasion of these islands, or to take part in a Continental war.

In the first case, the conditions as regards opponents, climate, and terrain are so variable as to render profitable discussion almost impossible. To deal with the second would involve consideration of the use of Territorial troops in conjunction with the Expeditionary Force. In the third the Expeditionary Force stands by itself, and it is with this, as being in many ways the most difficult as well as the most definite of our problems, that it is proposed to deal.

It would almost necessarily involve the action of the Expeditionary Force in a civilized country not altogether dissimilar to England—very varied in its nature, in parts much enclosed, in others open and undulating, in others again hilly and densely wooded, but one generally well provided with road, railway, and telegraphic communications. The inhabitants might be friendly, neutral, or openly hostile, but in any case would speak a different language to our troops with resulting difficulties in the way of information.

In such a war, too, we should appear, on land, as an ally not as a principal, and this would have a marked effect on the question of the concentration of superior force. Indeed, when the masses of men that the great European Powers would put into the field in such a conflict are considered, when it is remembered that our Expeditionary Force might conceivably only form one of seven or eight armies of equal or even greater strength distributed along the frontier between two neighbouring states, it might almost be asked how far would the British commander be a free agent, to what extent would the concentration of superior force at the decisive point rest with him?

Of course all the efforts of the British commander would be directed towards the attainment of an end agreed on by the General Staffs of the Allies, and the fact that, both as regards the interests immediately involved and the number of troops employed, our ally would be more heavily engaged than we were would naturally give to its chief command a preponderating voice in deciding what that end should be. Still it is not probable that our Expeditionary Force would act under the orders of the ally. In the past large bodies of troops have been employed under a foreign commander—Napoleon's Grand Army in 1812, for instance, contained as large a proportion of other than French troops as our Expeditionary Force would form if employed with the forces of any of the great military Powers—but before a

Power would confide the actual direction of its army to a foreign commander it would have to be assured of his genius, and such assurance could only be the fruit of war.

Moreover, when such a course is possible, it is always preferable to keep the armies of allied Powers separate in all things; the more closely they operate together the more readily do friction and difficulties arise. The assistance given to Prussia in 1866 by the Italian forces operating in an entirely separate theatre affords the best example of decisive military action by an allied Power in modern times. The complete defeat suffered by the Italians in no way affected the successful result; by engaging at all they drew away a large proportion of the Austrian Army from the decisive point and so ensured the superiority of the Prussians.

Action so completely independent could hardly be possible in any war that would involve our intervention on the Continent, but a study of the topography of Europe together with a consideration of the various situations that might arise from possible groupings of the Powers will show that there might well be minor theatres of action almost or altogether separated, by natural features or the impingement of neutral territory, from the scene of action of the main armies. In some such theatre might lie the sphere of employment of the Expeditionary Force.

Yet its action must always have a direct bearing on the course of events in the decisive theatre, either as drawing altogether away from it some portion of the hostile troops, or by its being so directed that its success would directly affect the action of troops opposing those of the ally. In other words, our Expeditionary Force would most probably be called upon to play the part of a detachment, and thus it would be subject to the great rule that governs the use of all detachments, that it must be capable of being drawn to the decisive point the moment it ceases to neutralize forces at least equal to itself in strength.

When thus actually drawn into close co-operation with his ally the British commander would, to a certain extent, necessarily lose his freedom of action. The circumstances of the case, or the superior command of the allied Power, would probably indicate the direction of his movement and might impose limits on the frontage he could occupy. But the frontage of an army of six divisions must remain considerable, and the army might be engaged for several days in fighting a battle against its own immediate enemy separated from—though not independent of—the forces of an ally at no great distance from it. In such a case the concentration of superior force at the decisive point would form a tactical problem differing in degree rather than in kind from that presented to the commander when his force was acting more independently as a detachment.

But the more independent rôle is that which is most to be desired.

In this case, whether we have to meet the main attack of the enemy, or whether we are opposed merely by a containing detachment, the first step we could take towards the concentration of superior force on any battlefield would be to place the *whole* Expeditionary Force in the field. Half measures are fatal to success which can only be won by the concentration of every available man at the decisive point. It is most desirable that the public should understand this, and that there should be no panic outcry for the retention of any portion of the Expeditionary Force within our borders.

Further, it has been shown that the prelude to success has almost always been a vigorous offensive. It is then with certain aspects of the tactical employment of the whole Expeditionary Force in offensive operations, in a terrain and under conditions generally such as have been outlined above, that it is now proposed to deal.

III.—INFORMATION AND THE BATTLE PLAN.

A vigorous and sustained offensive must be based on a perfectly clear and definite plan. The success of this plan, whether strategical or tactical, will depend very greatly on the extent to which the situation as it appears to the commander when framing the plan corresponds with the situation as it actually is. Information then is the groundwork of a sound plan.

Now the plan of offensive battle may, according to Field Service Regulations,² take three general forms :—

- (a) The convergence of forces on to a battlefield from different directions.
- (b) The extension of an army on a wide front with a view to overlapping and enveloping the enemy.
- (c) The movement of the army on to the battlefield in some concentrated formation which will allow of manœuvre till the last possible moment and so enable the commander to direct his main force against what he believes to be a weak place in his enemy's dispositions.

It will be seen at once that the germs of the battle plan are included in the strategical plan, for convergence on the battlefield demands an initial grouping of force quite different from that which would be required in either (b) or (c) above. The information available from the very commencement of a campaign has thus a direct influence on the battle plan.

Now information at the beginning of a war is the result of a study of the enemy's railway and mobilization arrangements, and of an intelligence system carefully built up during peace. If proper arrangements have been made, information derived from this source should be adequate as long as the forces are stationary. But the

² Field Service Regulations, Part I, Section 102.

moment movement commences, information derived only from an intelligence system becomes unreliable, and the nearer the armies approach to each other the less can it be depended upon.

The task of obtaining further information then falls on the cavalry, which is sent, often to very considerable distances, to pierce any protective screen the enemy may have drawn about his forces and to bring back answers to definite questions which shall enable the commander to form an accurate idea of his enemy's movements and designs.

But the difficulties of cavalry reconnaissance are steadily increasing. In part this is due to the growth in size of modern armies, and to the greater front they cover, which may make it impossible for cavalry to find out, even by hard fighting, exactly where within the area occupied by the enemy his main mass is; in part because of the universal appreciation of the value of cavalry reconnaissance and of the levelling up in training, which should render impossible such constant surveillance by patrols as took place during some phases of the Franco-German War; and in part to the larger areas now enclosed for cultivation which would hamper the movement of cavalry, and to the greater delaying power possessed by a few determined men armed with the modern rifle.

So well are these difficulties appreciated that the possibility of having to support the cavalry with considerable bodies of infantry and artillery—when the armies draw near to each other—is generally recognized, and it is accepted that, under certain conditions, a considerable portion of an army may be fighting for information which shall decide where the remainder is to be employed.

This difficulty of obtaining information has a distinct bearing on the battle plan. It would seem that it is its recognition that lies behind the advocacy of that plan of action which provides for the definite deployment of the army on the maximum of front compatible with reasonable strength everywhere with a view to the envelopment of an area by a semi-blind advance. This plan has many advocates and is a logical system for the employment of force. It has the great merit of simplicity, but the even greater demerit that control passes out of the hands of the Commander-in-Chief almost before the battle begins.

Yet serious as are the objections to such a system it must be confessed that the difficulties in the way of any other are very great.

The ideal of a manœuvre battle in which the commander holds a large portion of his force in hand until it is quite clear where it can best be employed has received no exemplification in recent war. The increase in the size of modern armies, the difficulties of reconnaissance, and the longer time required to bring about a decision have made it more difficult to recognize an enemy's weak point, and have so increased the distance which has to be traversed by the striking force

before it can begin to have its effect that it is questionable whether it could be brought up in time. Indeed, it seems to the writer that in most cases the theatre of employment of the striking force must be decided on at least 12 hours before it is intended to use it, and if we trust only to the old systems of obtaining information it may well be that when definite intelligence on which to base the necessary orders is received the 12 hours may no longer be available.

Yet when the circumstances of our army are considered there can be little doubt but that this third plan—if reasonably possible—is usually to be preferred. The Expeditionary Force, acting more or less as a detachment, will almost certainly have to fight a series of battles against its own immediate opponent, the commander always having in his mind the possibility of his being required on the final and decisive field. It is not impossible that we might use converging forces in these earlier efforts; bases, ports of disembarkation, &c., might well be available, but it is unlikely. The smaller the portions of a converging army the greater the risks incurred, and in the European theatre our force would be small if split into separate detachments.

The form of battle brought about by early and complete deployment may quite conceivably not lead at once to a definite decision. It will certainly produce hard fighting and consequent heavy loss, while the struggle may have to be renewed in a very short time. Such a battle is more suited to the forces of a nation better prepared than we are to maintain the strength of the army in the field with trained men.

But if it is possible to adopt the third alternative, if it is possible for our general to determine where the enemy is weak and to concentrate against that weakness, we may look for a definite decision on one field, for a success so complete that any loss will be justified as we shall have longer time accorded us in which to make it good.

The question is, has anything occurred to render this plan, which has received no exemplification in recent war, more likely to bring success in the future.

It is suggested that the invention of navigable aircraft has done this.

Navigable aircraft are of two kinds, dirigibles and aeroplanes. In the present state of their development the latter have great military advantages. They are cheaper, more easily handled and housed in the field, more rapid in flight, less vulnerable, and less affected by weather conditions. Indeed, except as regards time of remaining in the air and variation in speed, aeroplanes are at present infinitely superior.

Being able to travel at speeds up to 60 miles an hour and to remain for several hours in the air, an observer on an aeroplane can within a very short time see and report the exact position of all forces which

can be brought on to a battlefield within 24 hours. Experiments recently made with wireless telegraphy show that in a short time it may not even be necessary for the observer to return with information ; his report may be almost coincident with his observation.

His elevated position, moreover, enables him to obtain much more information than could be obtained on the ground. Unless hidden in woods and villages all the dispositions of the hostile troops are patent to him. Again the speed at which the aeroplane can travel, coupled with the height at which it can fly, render it almost invulnerable to attack from the ground.

On the other hand the machines, especially the engines, are not yet entirely reliable, and men using them are undoubtedly accepting grave risks to life and limb. Aeroplanes are also peculiarly subject to weather conditions, a heavy or gusty wind rendering flight almost, if not quite, impossible. But in this connection the conditions in the suggested Continental theatre are more favourable than in these islands. There are comparatively few days on which flight would not be possible at some hour. The middle of the day might often be impossible, but early dawn or late evening would generally afford the opportunity.

Hitherto aerial reconnaissance at night has not been attempted, but, having in view the value of the information that might be gleaned by the grouping of bivouac fires, it may safely be assumed that in war time night reconnaissance would be attempted, the landing-place for the aeroplane being marked by searchlights or flares.

Considering both its advantages and dangers, the aeroplane as an instrument of reconnaissance is greatly superior to anything that has preceded it.

It is quite certain that both combatants will make use of this invention, and as armies draw near together opposing aeroplanes will meet in the air. But though there will be something in the nature of a collision it is improbable that the means of aerial reconnaissance on either side will be annihilated. The relatively small number of aircraft, their great speed and the great space lateral and vertical in which they can manœuvre, render it probable that both sides will retain sufficient machines to obtain accurate information, varying perhaps in amount, up to the very moment of collision.

Not only should this enable a commander to direct his forces towards the battlefield, but it should also enable him to form just as accurate a mental picture of his enemy's dispositions as his predecessors of 100 years ago were able to do owing to personal observation. This last was never absolutely complete, some part of the enemy's dispositions had to be conjectured from what could be seen ; so will it be with information afforded by the aeroplane, for every commander will seek to deceive the enemy's observers and to conceal his dispositions from their eyes. Hence will come a greater

use of marching by night, when troops on the move will be screened from observation; of halts in woods and villages, and of taking advantage of inclement weather to carry out important moves. But in spite of all an able commander should obtain sufficient information to enable him to form a more complete idea of his opponent's dispositions than has been possible in recent war.

How will this affect the various forms of battle plan?

In the approach to the battlefield (using this term in a wide sense) the methods of convergence and of early deployment with a view to overlapping are in the main similar to each other, with this difference, that whereas in the latter the army would form a practically continuous line of advancing columns with no considerable interval between them, in the former the advancing columns would form two distinct groups. These groups would be separated by a very considerable interval which would tend to decrease rapidly as the columns pressed forward towards a common centre. In both cases the movement must be initiated while still at a distance from the objective, the enemy's army, although that objective will itself almost certainly be on the move.

Now in the absence of such information as is to be obtained by aerial reconnaissance, the plan would have to be based largely on information of a general character, and on a forecast of the enemy's probable moves. As the columns came into contact with the enemy information of a much more definite nature would be obtained by fighting. The grouping of the enemy's forces could then be, to some extent, deduced, and by circulating this information to the commanders of various columns the Commander-in-Chief could in a measure regulate the pressure exerted in any particular direction, for each column having some idea of the strength of the troops opposed to it would act with boldness or caution in accordance with the demands of the situation. Yet this regulation of pressure is not very real, for the essence of this form of plan lies in a constant, unremitting offensive (in so far as this is possible) in the assurance that though some portions of the army will be checked they will occupy sufficient of the enemy's forces to enable others to succeed, and that success anywhere will mean success throughout, for, by the overlapping and enveloping nature of the movement, if one portion of the enemy's army is driven back the retreat of the remainder must almost necessarily be compromised. Defeat in detail is the principal danger to be apprehended by a commander who adopts these forms. This may arise owing to the skilful use by the enemy of natural features which may enable him to check certain columns with greatly inferior numbers, thus giving him superiority of force at points at which he can make full use of it; or it may be due to failure on the part of the commanders of some of the columns or detachments to act with the necessary vigour because of their misconception of the strength

of the enemy opposed to them, this failure allowing the enemy to concentrate in strength elsewhere.

With an efficient air service a commander should now have at his disposal much more definite information than formerly when making his plan, and his dispositions would be based on surer grounds. As the armies approach each other any considerable change in the enemy's dispositions would be reported to him, probably in time to allow of any modification in his arrangements that he might consider necessary. And once the columns came into contact, detailed information as to the strength of the forces opposing, or likely to oppose, each would be forthcoming.

The whole movement then should be made with greater certitude, and it might even seem that the enemy might no longer be able to hold off a portion of the army with inferior forces while concentrating superior force against the remainder. Yet this is not so.

Topography is not affected by the invention of aircraft. Aeroplanes by revealing the strength and dispositions of the enemy will afford great assistance to advancing columns. A commander, confident that the troops opposed to him are inferior in strength, may attack with the greatest vigour; but knowledge of the strength of the defending force may profit him little if that force is so disposed as to take full advantage of a naturally strong position. The Federal Commander at South Mountain in September, 1862, knew that the forces opposed to him were greatly inferior to his own, but their tenacity and the advantages of a strong position enabled the Confederates to gain the time for which they were fighting.

It is not even certain that the aeroplane will eliminate the other cause of failure noted, misconception of the enemy's strength. History affords many examples of commanders who, as a result of fighting, formed an entirely erroneous opinion of the strength of the troops with whom they had been engaged, and this despite the fact that previous intelligence had given them data on which to base an accurate estimate. It is not impossible that a commander may sometimes prefer to trust to his own opinion, formed by observation of a fight, rather than to the report of an observer which may seem to clash with what he himself has seen.

On the whole then the invention of aircraft will assist the commander utilizing the systems of convergence or of wide extension principally as affording him more definite information on which to base his original dispositions, and as lessening the anxiety that must arise from uncertainty as to the general grouping of the hostile forces. The essence of these plans of action still remains the same, a constant, unremitting offensive, the success of one portion of the army leading to the success of all, there being no choice as to which portion is to win the success, that depending on factors mainly beyond the commander's control.

But the essence of the manœuvre battle lies in the selection of that portion of the army which is to win the decision, and in such use of ground as shall enable the smallest possible force to parry the blows of the enemy elsewhere in order to set free the largest possible numbers to strike the decisive blow. The choice of that body of the enemy's troops which shall form the objective of the main attack has always presented difficulties, and the great danger to be apprehended in this form of battle has been, and is, that before information is available on which to make the choice the pressure exerted in all directions by the enemy will have become so great that the commander will be forced to forego his own plan and will merely conform to that of his opponent. The information that can be obtained by aerial reconnaissance now makes it possible—at least in the opinion of the writer—for the commander to decide on the objective of his attack, and to make his dispositions, before the advancing forces of the enemy can exert such pressure.

If then as a nation we take full advantage of the power conferred by the invention of aircraft, we can make that full use of generalship on the field of battle which, as has been shown above, is especially suited to our needs. Yet let it not be forgotten that the existence of the aeroplane in no way reduces the importance of the qualities that led to success in the manœuvre battle in the past. Decision in the leader and great skill in the use of ground, tenacity and mobility on the part of the troops, are necessary to-day as ever. Only to a leader and troops possessed of these qualities does the aeroplane make possible the great results that may be won by means of the manœuvre battle.

IV.—MOBILITY—RAILWAYS AS A FACTOR IN THE CONCENTRATION OF SUPERIOR FORCE.

The great importance of mobility in any effort to secure the concentration of superior force at the decisive point is obvious, but it is not always realized that the conditions of mobility have changed and are changing continually.

Apart from the nationalization of armies, bringing in its train enormous increase in numbers, the change is mainly the result of social progress. The increase in the areas under cultivation, due to the growth of population, has tended more and more to confine the movement of troops to roads; but the number of roads has greatly multiplied, and the recent revival in their importance owing to the introduction of mechanical transport is bringing about a general improvement in their condition.

Yet perhaps the most remarkable development in communications is to be found in the spread of that network of railways which has grown out of the comparatively few trunk lines in existence at the time of the Franco-German War.

Now although the effect of railways upon strategy is the subject of constant study, their possible effect on tactics (as increasing mobility) does not appear to have been considered, at all events in this country, to anything like the same extent. Yet since the first famous use of railways on the battlefield of Bull Run in 1861 there have been many examples of this tactical employment, and increased facilities must lead to its extension in the future.

As a result of present-day conditions armies have become more flexible. The introduction of mechanical transport, by clearing the rear of columns of troops of long trains of slow-moving vehicles, has greatly simplified a change of direction, or the move of a portion of an army to a flank, always provided that this portion can still be reached by a reasonably good road. The greater network of railways increases this flexibility, for supplies can be brought up to any station that may be convenient, and thence either issued direct to the troops or forwarded by means of mechanical supply columns. In the former case the roads immediately in rear of the leading bodies of troops would be clear of all supply transport and so be available for the movement of other bodies of men; in the latter the great radius of action of the supply columns makes it possible, if so desired, to detrain supplies at stations well back from the front thus leaving the more advanced portions of the railway clear for the transport of troops.

Can advantage be taken of this fact?

One of the most difficult of the problems confronting a leader who has decided where he wishes to make his main attack is how to bring his striking force to the desired portion of the field in time for it to be effective. The distance to be traversed would not, as a rule, be very great; an army of six divisions will very rarely occupy a front or depth exceeding 25 miles as it approaches the enemy. Now a study of the map will show that it is not difficult to conceive of situations in which there would be a line of railway parallel to, and at no great distance behind, the front of the army. The fact that such a line might be made available for the movement of troops without any interference with the services of maintenance might prove of very great importance.

The general question as to whether troops should or should not be moved by rail depends on many factors. Assuming for the moment that rolling-stock is available, the most important of these is the time taken in entrainment and detrainment, and this depends almost entirely on the facilities existing at the points of departure and arrival. The Field Service Regulations lay down the principle that if a large force is to be moved a comparatively short distance it is quicker for it to proceed by march route. As an example it is stated that at an ordinary wayside station on a double line, but under conditions otherwise not unfavourable, a division would take two and a-half days

to entrain, or two days to detrain. Thus, if the stations were only 60 miles apart the division would reach its destination just as quickly by road although the time occupied in transit by each train would only be a few hours.³

How great an influence entraining facilities have on the question of time is shown by the fact that, not long ago, the two London Territorial Divisions and a mounted brigade were moved from London to Salisbury Plain within 20 hours, and this without interference with the ordinary and excursion traffic incident to the Sunday immediately preceding the August Bank Holiday. Four stations were used for entrainment—Paddington, Addison Road, Waterloo and Nine Elms—and for detrainment four quite small stations on the Plain. In round numbers the force transported comprised some 30,000 men and 8,000 horses, together with 96 guns and transport, including the ammunition column vehicles, a force considerably greater than a division at war strength.

Turn to the number of trains that, apart from any question of entrainment, can be run over any section of line in 24 hours. As far as can be ascertained, the military Powers seem to be in general agreement in placing this at between 30 and 40 on a double line, or at about 20 on a single. The average speed allowed for in the above is between 15 and 20 miles per hour. The carrying capacity of these Continental trains is roughly double that of an ordinary English troop train, an English division, less the divisional ammunition column, requiring some 40 trains. Thus it will be seen that in favourable circumstances as regards entrainment and detrainment it would require 24 hours at least to move a division from 20 to 30 miles by train, a distance that it might cover in a single march.

It is unlikely that there will be many facilities for entraining, and particularly for detraining, close to an army in the field. True, no one who has travelled along the frontiers of the great European Powers can fail to have noticed the many platforms and sidings at stations where the absence of ordinary traffic makes it clear that these exist for military purposes. But such stations are prepared for the strategic concentration of the national forces; and, apart from the fact that being so used they could probably not be placed at the disposal of an ally, they are generally situated well outside the debatable ground in which the opposing forces will first meet. If railways are to be used for tactical purposes, it is within this ground that detrainment, at all events, will have to be effected.

The fact that it may be necessary to entrain and detrain at stations where no special facilities exist is recognized on the Continent, and troops are practised in entrainment and detrainment with specially prepared ramps carried on the trains themselves. Such makeshift

³ Field Service Regulations, Part I, Section 22 (4), and note.

devices are valuable, but the necessity of their use would probably increase the time required for the movement of troops by at least 25 per cent.

On the above data then, making use of a double line of railway, it would take certainly 30 hours, and perhaps more, to bring up a complete division to the required point. Even this result is not to be despised, although the distance to be traversed may be within the compass of a single march. The number of roads leading in the required direction may well be limited, and not only may the troops moved by rail be additional to those which may have arrived during the same period by road, but they will also have been spared the fatigues of a march. It must be remembered, too, that although it will be 30 hours before the whole division is up, quite considerable bodies will have arrived in much less time, and their arrival may be most opportune. There is a distinct danger here, however. There is often a tendency to hurry troops into action immediately on their arrival in the neighbourhood of the battle. Troops arriving by train do so piecemeal, and unless time is allowed for the higher formations to collect it may be that these will cease to exist as units, and that the various lesser bodies will be employed with all that waste of energy and lack of combined effort which marks the engagement of troops sent into action piecemeal.

It may be questioned whether the above fairly represents the maximum result that can be obtained from the use of railways.

Under peace conditions the number of trains run over a section of line often exceeds the number given above for military traffic; particularly is this the case with the excursion traffic, which may be classed as the abnormal in civil railway matters. The data given have been arrived at for the movement of troops during the great concentrations which take place at the commencement of war, and accommodation is allowed for both first and second line transport. Movement during such concentration continues without cessation for many days, and troops have often to be brought from long distances. Absolute certainty of transport is the great aim, and in arriving at the number of trains, times, &c., generous allowances are made in order to permit of the repair of damage or breakdown without the whole concentration being thrown into disorder. Great as must be the strain of the control of such traffic it may be taken to represent the normal in the military sense; the tactical concentration of troops represents the abnormal.

It would involve the movement of smaller bodies over shorter distances, and would mean a tremendous burst of activity for a comparatively short time. It would indeed approximate to the abnormal civilian traffic consequent on a race meeting or a popular football match, time being the most important factor. In such tactical concentration, moreover, it would generally not be necessary

to carry the second line transport, hence a considerable saving in accommodation and particularly in time, for it is the entrainment and detrainment of animals and vehicles that consumes time in the movement of troops.

Beyond saying that it seems as if the rate of transport in these circumstances should be capable of very considerable increase it is impossible for a non-expert to express an opinion of any value as to what might be accomplished. Indeed, it is doubtful if any opinion based on theory alone without some basis of experiment would be worth very much, and such experiment would have to include entrainment and detrainment of troops with portable ramps. Enough has been said, however, to show that it is at all events probable that railways might be of the utmost assistance in securing the concentration of superior force at the decisive point.

This assistance would be particularly great should circumstances demand that our army—fulfilling its rôle as a detachment—should withdraw from its original theatre of employment with a view to closer concentration with the main army of an ally, provided that the concentration could be effected by means of the regular railway system of that ally.

But though no doubt an army should be acting within the borders of its own country to obtain the greatest possible advantage from the tactical use of railways, the fact of our acting as an ally on alien soil need not necessarily greatly augment our difficulties. It is almost certain that a line, or lines, of railway would be specially allotted for the maintenance of our army, and the amount of rolling-stock on most parts of the Continent is ample for all military requirements. Indeed that required for such tactical concentration need not be very great if means exist for its early return to the point of departure. Whether the actual working of the line would be undertaken by British personnel would be matter for arrangement with the Government concerned, but one point is clear, the actual control of that portion of the line used for tactical purposes would, in most cases, have to be exercised by British officials. Only very few officers receive training in railway work during peace, and though these could, with the assistance that would be at their disposal, probably control the normal military traffic, including the movement from the ports of disembarkation to the zone of concentration and the regular services of maintenance, yet it may reasonably be doubted if they would be qualified for the working of a railway at such high pressure as is here contemplated. To do this efficiently the services of those accustomed to deal constantly with excursion traffic would be required. In case of invasion the highly skilled personnel of our great railways would be entirely at the disposal of the nation; we might be fighting for our existence just as truly even though the theatre of war were outside these islands, and it is to be hoped that

some arrangement is in existence which will place the highest skill at the disposal of our commander in the field.

But before a commander can conceive a plan involving the tactical concentration of troops by rail he must know the capabilities of railways working at high pressure. This can only be ascertained by practical experiment; indeed, without experiment and practice the best possible results can never be obtained. By experiment only can the staff learn what such concentration would involve; practice is necessary for officers and N.C.O's. to learn the work devolving on them in the use of makeshift means of entrainment.

Experiment of this nature can be carried out at manœuvres, though the expense must necessarily be considerable. Our railway companies are so accustomed to handling excursion traffic that, from their point of view, the movement of the troops would be quite feasible, though for other reasons it might be desirable to make the operations take the form of a tactical exercise or set piece. Pending such experiment something might be done to awaken interest in the subject throughout the army if railways were given their proper place in winter exercises. In schemes at present, although roads and telegraphs are generally treated as existing, railways are far too often dealt with as though they might be ignored. But practical experience is what is most required, and among the many problems awaiting solution at Army manœuvres not the least important seems to be the tactical employment of railways in securing the concentration of superior force at the decisive point.

V.—DEFENSIVE FIGHTING AS A PART OF THE SUCCESSFUL OFFENSIVE.

It is a truism that offensive action alone can give decisive success in war, and in Part II of this paper the intention of considering the action of the Expeditionary Force, under certain conditions, *in offensive operations* was definitely stated. But it has also been shown—in the conclusions arrived at in Part I—that defensive fighting may often be an integral part of the successful offensive. That this is the case is recognized in Field Service Regulations, despite the fact that nowhere is the doctrine of the offensive more clearly set forth. It may be well then to consider certain aspects of defensive fighting.

This may take two forms. The defensive of a portion of an army in a strong position seeking to hold off a superior force while the decision is being gained elsewhere; and the defensive by a force covering the concentration of an army or its movement towards the decisive point. This latter form will often involve a delaying and retiring action in the face of greatly superior numbers. The action of the Japanese right at the battle of the Sha-ho may be cited as an example of the first; that of D. H. Hill and Stuart at South Mountain, when covering the concentration of Lee's army at Sharpsburg in September, 1862, exemplifies the second.

Enough has been said of the general nature of the manœuvre battle to show how probable it is that portions of an army attempting to win success by this means will be called upon to make use of either or both of these forms. It is important then that troops who may be employed in defensive fighting should not lack confidence merely because they are so employed.

Yet there is some danger that this may occur. There appears to be a tendency in some quarters to push the doctrine of the offensive beyond the limits to which it is confined in Field Service Regulations, and to deal with the defensive as if without exception it implied inferiority.

In cold theory the pure defensive is still, as Clausewitz claimed, the stronger form of war—that is, a single man well posted is in a stronger position than another who has to attack him over open ground—it is the power of manœuvre and the spirit of attack that make the offensive preferable. It is hardly likely that a commander who places a portion of his force on the defensive will doubt the efficacy of this form, but if the doctrine of the offensive is preached too much the ultimate effect will be that regimental officers and men, finding themselves on the defensive, will at once feel that they are in some way inferior to their opponents. This is most strongly to be deprecated. They should feel that as regards themselves there is little difference between attack and defence, the only matter of importance being the spirit in which they fight. Their confidence should be in themselves, not in the form of fighting they may be called upon to use.

Moreover, those who affirm the inferiority of the defensive appear to forget that, in the manœuvre battle at all events, the whole object of a commander in placing any portion of his force in a defensive position is so to increase the strength of that portion by adding to it advantages of ground and of entrenchment that it shall be, not inferior, nor even equal to, but superior to the troops the enemy may bring against it. This, too, even though these troops have, as he must hope will be the case, a distinct numerical superiority. By thus neutralizing a larger force of the enemy with a portion only of his own army, reinforced by the wise use of ground, the commander is able to concentrate superiority of force in that portion of the field where he intends, by offensive action, to win the decision. In his mind the troops he has placed on the defensive are, by the selection of their position and the preparations they have been able to make, more than equal to the enemy; they should themselves appreciate this fact.

A study of Field Service Regulations will show that the above is their teaching on this point. It in no way clashes with the doctrine of the offensive preached in them, itself in full accord with the teaching to be derived from the experience of past wars. It is well that we

should have so clear a doctrine ; but there are always those who will press any doctrine too far, and to prevent these finding any sanction for extreme views it would appear desirable that the opening sentence of para. 2, Section 100, Field Service Regulations, Part I, in which it is stated that "the defensive is . . . usually the consequence of inferiority of some description," should receive some modification.

This might be effected by the insertion of the words "on the part of the army as a whole" immediately after the word "defensive," or by the inclusion in the same paragraph of a statement to the effect that so far from being inferior a portion of an army in a defensive position may, by the use of ground and of entrenchments, be able to neutralize a considerably larger force of the enemy, thus setting free troops by means of whom a commander may obtain superiority of force in that portion of the field where he intends to take the offensive.

One more point in connection with defensive fighting deserves notice. In training and manœuvres the first form referred to above is frequently practised, but the second—mobile delaying action—is rarely or never attempted on a large scale. Yet the successful conduct in the field of this form of action must always present great difficulty, and it seems that much of great value might be learnt from its practice in peace. There are many difficulties in the way ; the question of umpiring alone always presents such in any rearguard action, and with large forces the difficulties increase. Still from time to time many problems have to be worked out at manœuvres ; and although, as a rule, the opposing sides are practically equal in strength, the pitting of a single division against two or three might well be attempted in conjunction with an effort at the solution of some other problem, such as those connected with the use of railways or of mechanical transport.

VI.—SUMMARY AND CONCLUSIONS.

In this paper an attempt has been made to convey not only certain conclusions but also an outline of the methods by which they have been arrived at.

In Part I are given what would seem to have been some of the most prominent factors in the concentration of superior force in the past. These factors are constant, but so vast that it is quite impossible to deal with them all. Indeed, before dealing with any it seemed necessary to visualize some definite military problem involving the use of the Expeditionary Force. This problem, with its conditions, is stated in Part II.

Three special points are then dealt with. In a study of the campaigns outlined in Part I, the change, or rather the evolution, of the form of battle plan is very marked. On the whole, the change has not been in the direction of that form of plan referred to in Field Service Regulations as "usually most suited to the circumstances

of our army.”⁴ Yet, to the writer at least, it seems that these words do express a truth, and that the general form or principle (for it does not seem to him that any normal method is here intended) so outlined, that of retention of control by the Commander-in-Chief, is both most suitable to our needs and can be made possible by the creation of an efficient air service and the development of certain qualities in our army.

Among these qualities mobility holds a high place, and Part IV has been devoted to one phase of this question, the tactical employment of railways.

In Part V certain aspects of defensive fighting as forming an integral part of the successful offensive have been considered.

These three subjects have been selected because they have each a bearing on the subject of the concentration of superior force which seems of special importance at the present time. No pretence is made that they have been dealt with exhaustively; that would not be possible within the limits of a single article. One subject, however, which has not been dealt with does seem to demand special mention. In the conclusions arrived at in Part I it is stated that prominent among the factors of success in the past has been an organization developing the full powers of a people for war. At every step in this inquiry into the possibilities of the future the enduring truth of this statement has been borne in upon the writer, and this quite apart from all question of numbers. The problems of the organization of an efficient air service, and of the tactical employment of railways would be immensely simplified were all the talent in the country immediately available on the outbreak of war. The impression left on the mind is that those responsible for the handling of our army—that is, for its concentration in superior force at the decisive point—are heavily handicapped, and must so continue so long as our army remains largely divorced from the national life and is not in a great war the true expression of an armed nation.

⁴ Field Service Regulations, Part I, Section 102 (4).

XVIII.

THE STUDY OF TACTICS FROM HISTORY— WEISSENBURG.

By BRIGADIER-GENERAL J. P. DU CANE, C.B., C.R.A., 3rd Division.

FEW battles bring out more clearly than Weissenburg the necessity to adapt tactical dispositions to the strategical situation.

The 2nd Division of the 1st Corps (French), commanded by General Abel Douay, found itself at Weissenburg on the morning of the 4th August, 1870, within striking distance of greatly superior forces of the enemy. Its commander was imperfectly informed as to the situation and was without clear instructions as to how he should act if attacked. The Division was surprised in its bivouac, attacked by overwhelming forces and defeated with heavy losses. It is necessary to understand how these events came to take place in order to appreciate fully the tactical lessons of the battle.

GERMAN CONCENTRATION AND PLAN OF CAMPAIGN.

Moltke's plan of campaign was based on the assumption that the French would assemble their army on the line Strasburg-Metz and "avoiding our strong front on the Rhine, push forward to the Main, separate North from South Germany, come to terms with the latter, and use that country as a base for further offensive operations on the Elbe."¹ To counteract such a plan and at the same time prepare for an offensive at the earliest possible moment in the greatest possible strength in the most effective direction, it was decided to concentrate the whole of the available German forces in the Bavarian Palatinate on both banks of the Rhine.

If the French were to concentrate considerable forces in Alsace, and, seizing the initiative, were to threaten South Germany by crossing the Upper Rhine, the German left wing could advance up the left bank of the Rhine and paralyse the French offensive. South Germany would thus be indirectly protected.

If, on the other hand, the German mobilization were to prove the more rapid of the two, as there was every reason to expect, the bulk

¹ German Official History.

of the German Army could cross the Saar and enter Lorraine with superior forces, which movement, being on the direct road to Paris, could be confidently expected to throw the French on the defensive in the main theatre.

In order to carry out this plan it was decided to assemble the troops in three armies :—

The Ist Army (about 60,000 men) near Wittlich to form the right wing.

The IInd Army (about 130,000 men) in the area Neurkirchen-Homburg to form the centre.

The IIIrd Army (about 130,000 men) about Landau and Rastatt to form the left wing.

It is with the IIIrd Army only that we are concerned. That army consisted of the Vth and XIth Prussian Corps, the Bavarians, Wurtembergers, and Badeners.

The bulk of the troops concentrated behind the Klingbach, covered by the 4th Bavarian Division at Bergzabern and the 42nd Brigade of the XIth Corps at Langenkandel.

The distribution of the troops in the area of concentration was as follows—*vide* Map II—

Vth Corps and 4th Cavalry Division round Landau.

XIth Corps round Germersheim.

Ist Bavarian Corps round Speyer.

IInd Bavarian Corps round Neustadt.

Werder's Corps, Baden Division round Karlsruhe, Wurtemberg Division round Graben.

The covering troops pushed forward detachments to the line Pfortz-Schaidt-Steinfeld-Kapsweyer-Schweigen and thence to Pirmasens. Some cavalry reconnaissances were carried out across the frontier, but gleaned little information of value. The mobilization and concentration of the 4th Cavalry Division were seriously delayed and the Division was not formed till the 1st August.

Such was the situation at the beginning of August when it was known at the German Headquarters that the French were assembling a considerable part of their army in Alsace. Moltke then allotted an independent mission to the IIIrd Army, namely, to seek out and destroy the French forces in Alsace. Should the French be defeated and driven back on Strasburg the Crown Prince should watch and contain them with a portion of his force, while moving the bulk of his troops North across the Vosges, so as to be in a position to operate against the right flank of the main French Army in Lorraine. Should the French cross the Vosges without awaiting attack the IIIrd Army should move along the Palatinate frontier towards the Saar, so as to reach the neighbourhood of Saargemund on the 9th August.

It was important, therefore, that the IIIrd Army should advance on the earliest possible date. Accordingly the Crown Prince, on the

urgent representations of Moltke, conveyed to him personally by Colonel von Verdy, ordered the army to be prepared to advance on the 4th August without its trains, which were not yet complete, and as a preparatory measure the Corps were ordered to close up and concentrate in bivouac as follows on the 3rd :—

4th Bavarian Division—Bergzabern. Advanced Guard to the Army.

Vth Corps—Billigheim.

XIth Corps—Rohrbach.

Remainder of IInd Bavarian Corps—Walsheim (North of Landau).

Ist Bavarian Corps—West of Gernersheim.

Werder's Corps—Badeners, Pfortz ; Wurtemburgers, Knielingen.

4th Cavalry Division—Offenbach (East of Landau), *vide* Map III.

It will be seen, therefore, that the IIIrd Army was assembled with one Division as Advanced Guard, three Corps in front line and one and a-half Corps in second line, but unfortunately the Cavalry Division was still in rear.

A few comments only are necessary on these dispositions.

The concentration was screened by the Bienwald and the Klingbach, a judicious arrangement which would have made it difficult for French reconnoitring detachments, had such been employed, to obtain definite information. On the other hand the open country between the Vosges and the Bienwald in the neighbourhood of the frontier is restricted. It was, therefore, very desirable to ensure the passage of the Lauter and the exits from the Bienwald without risk of attack by the enemy. This pointed to the urgent necessity for accurate information as to the position of the enemy's main forces in Alsace before the advance took place, and emphasized the evil effects of the tardy mobilization of the 4th Cavalry Division. If that Division had crossed the Lauter either on the 3rd August, or even early on the 4th, and had pushed reconnaissances to the South towards the Sauer, much useful information would have been obtained, and the state of uncertainty that existed even after a successful action would have been avoided.

It is curious that the Crown Prince should have considered it necessary to assemble the various Corps of his army in bivouac, each in a very limited space, on the 3rd August, before advancing. To concentrate to such an extent hardly seems to have been desirable, as the troops must necessarily open out again on the following day when they advanced. Some closing up of the billeting areas was advisable, but the principle of billeting in depth, along the road by which it is intended to advance, was certainly applicable to the situation.

The following is a summary of the Crown Prince's orders for the 4th August, as given in the German Official History.

"It is my intention to-morrow to advance with the army as far as the Lauter and to throw vanguards across it. With this object the Bienwald will be traversed on four roads. The enemy is to be driven back wherever he is found.

"The columns will march as follows :—

"1. Bothmer's Bavarian Division will continue as Advanced Guard, move on Weissenburg and endeavour to gain possession of the town. . . . It will move at 6 a.m.

"2. The remainder of Hartmann's Corps will leave its bivouac at 4 a.m. and move viâ Bergzabern on Ober Otterbach.

* * * * *

"3. The 4th Cavalry Division will concentrate to the South of Morlheim at 6 a.m. and march viâ Billigheim as far as Ober Otterbach. . . .

"4. The Vth Corps will leave Billigheim at 4 a.m. and march viâ Barbelroth and Nieder Otterbach to Gross Steinfeld and Kapsweyer. It will form its own Advanced Guard, which will cross the Lauter at St. Remy and Wooghauser, and place outposts on the heights on the far side. . . .

"5. The XIth Corps will start at 4 a.m. and move viâ Steinweiler, Winden, Schaidt, across the Bienwald to the Bienwald hut. It will form its own Advanced Guard, which will press forward over the Lauter and place outposts on the heights on the further bank. . . .

"6. Werder's Corps will march along the main road to Lauterburg and endeavour to gain possession of that town and place outposts on the far bank. . . .

"7. Von d. Tann's Corps will move at 4 a.m. along the main road viâ Rulzheim to Langenkandel. . . .

* * * * *

"8. My position in the forenoon will be on the heights between Kapsweyer and Schweigen. . . .

* * * * *

"(Signed) FREDERICK WILLIAM,
"CROWN PRINCE."

It will be noted that these orders follow closely the main idea underlying Moltke's strategy, namely, to seek out the enemy and destroy him.

The timing of the marches of the different corps is laid down with some precision for the double reason of preventing congestion in the neighbourhood of Landau and of ensuring the simultaneous arrival of the leading troops on the Lauter. Assuming that the leading troops started from the places indicated in the orders, if the times and distances are worked out it will be found that Bothmer's Bavarian Division might expect to reach Weissenburg at 7.45 a.m., the Advanced

Guard of the Vth Corps to reach Kapsweyer at 7 a.m. and the Advanced Guard of the XIth Corps to reach the Lauter at 7 a.m. But the order stated that the Vth and XIth Corps were to form their own Advanced Guards. This order was differently interpreted in the two Corps. The 42nd Brigade, which had been covering the concentration, formed the XIth Corps Advanced Guard and started from Winden 5 miles ahead of the main body, while the Advanced Guard of the Vth Corps started from the bivouac of the Corps at the hour named in the order. The timing was therefore upset. Adherence to the provisions of our Field Service Regulations for naming a starting point and the time for the head of the main body to pass that point would prevent such a *contretemps*.

As the 4th Bavarian Division marched level with the heads of the Vth and XIth Corps it is difficult to see how it could perform the functions of an advanced guard to the army as stated in the order.

The cavalry marched late owing to their position in the midst of the army, and no effort seems to have been made to get them ahead and free of the congestion of traffic that encompassed them.

FRENCH PLAN OF CAMPAIGN.

We have considered in outline the concentration of the German Army and the measures taken to cover the concentration during the critical period before the army was assembled and ready to advance. It is outside the scope of this article to attempt a detailed criticism of the arrangements, but although it is not suggested that they were by any means perfect, it must be borne in mind that as compared with other armies, the state of preparedness of the German Army was greatly in advance of the times.

The organization and the arrangements for mobilization of the French Army were in no sense comparable. In the majority of cases the Brigades, Divisions, and Corps were formed on mobilization and the reserves joined their units after they had reached the frontier stations at which the mobilization took place. The arrangements for supply, the assembly of the transport, and the issue of stores and equipment all had to be extemporised to a very great extent. To these shortcomings much of the confusion and hesitation of the early days is attributable. Miscalculations are fatal to strategy and nobody could foresee with any accuracy when any unit or formation would be complete and ready to move.

In such circumstances it is hardly to be wondered at that it is difficult to ascertain what was in reality the Emperor's plan of campaign. The fact is that during the period before the first battles took place it varied from day to day according to the information received as to the action of his hoped-for allies, the progress made in the mobilization of his own forces, and the news of the enemy.

Seven Corps were assembled along the frontier from Huningue to Sierk. At one time there was undoubtedly an idea of assuming the offensive and invading South Germany. But the troops were not ready in time to put such a plan in execution. Offensive plans were therefore abandoned and were succeeded by a desire to guard every avenue of approach, so that French territory might not be invaded before the army was ready to act. Such action is, of course, strategic anathema, leading as it must to dispersion of force, and facilitating the delivery of a series of crushing blows by the concentrated forces of the enemy.

On the 25th July the Emperor confided to Marshal MacMahon the command of the Ist and VIIth Corps, which formed the right wing of the French Army in Alsace.

The Ist Corps, of which MacMahon retained command, consisted of four divisions, which all assembled at Strasburg.

The VIIth Corps consisted of three divisions, which were assembling at Colmar, Belfort, and Lyons respectively.

The Vth Corps was assembling at Bitche, in order to assure communication between MacMahon in Alsace and the Emperor on the Saar.

MacMahon's army was, therefore, widely scattered. It was also separated from the main army in Lorraine by the Vosges, a formidable military obstacle, and was opposed, as we have seen, by greatly superior hostile forces that were concentrated and likely to assume the offensive at an early date.

Let us consider for a moment the bearing of the Vosges Mountains on this situation. There were three possible uses to which a commander, situated as was MacMahon, might put this mountain range.

- (i) He might take up a position on the Eastern spurs of the range on the right flank of the Crown Prince's army if the latter advanced up the left bank of the Rhine on Strasburg.
- (ii) He might retire into the mountains, and attempt to make up for his inferiority in numbers by fighting in a difficult *terrain*.
- (iii) He could retire through the mountains while holding the passes and prepare to attack the enemy as he debouched.

To take these alternatives *seriatim* :—

(i) A position on the Eastern spurs of the Vosges, such as the Woerth position, would be what is commonly called a flank position with reference to the IIIrd German Army if it advanced South into Alsace. The Crown Prince could not pass MacMahon by in such a position, but must turn aside to attack him. To do otherwise would expose his own communications. But is there any intrinsic merit in such a position strategically ?

Clausewitz tells us that the value of a flank position depends entirely on its tactical strength. If it is so strong as to be practically unassailable and the enemy is checked by it, then a great effect

has been obtained by a relatively small expenditure of force. "It is the pressure of the finger on the long lever of a sharp bit." But if the enemy is not checked the effect is apt to be delusive. The defender must either issue from his position and attack the enemy or retreat hurriedly by a detour.

If on the other hand the position is not tactically strong, it derives no increase of strength from its position on the flank. The enemy will attack and the decision will be arrived at according to the tactical conditions. The relative direction of the lines of communication of the combatants affects only the fruits of the victory.

We must conclude from the above arguments that such a position as that of Woerth, for instance, should be judged purely on its tactical merits.

(ii) The same authority tells us that a mountain range is suitable for a relative defence but unsuitable for an absolute defence. Or in other words a mountain range should be used to delay an enemy rather than to fight a "defensive battle in the mountains." It is easy to see the reason when it is pointed out. A small post may acquire extraordinary strength by selecting a good position in a mountainous country. It has in fact "a kind of tactical effrontery" and may "exact the military honour of a regular attack."

But the same does not apply to a chain of posts. For while it may be necessary for the attacker to turn the flank of even a small post, it is usually possible to do so, and the strength of the post conferred by its position in the mountains arises from the fact that the turning movement will be more difficult and will take longer than would ordinarily be the case.

But when we consider the strength of a chain of posts it is obvious that the attack can, as a rule, concentrate adequate forces against any single post that it may select, and in time capture it. The chain once pierced, the effect of the mountains is to make all the other posts uneasy about the security of their retreat, which is thereby hastened. While mountains, therefore, are strong for a purely passive defence, it is clear that the defence can only be temporary. For if we try to fight a defensive battle in the mountains we are met with all the difficulties of movement to a much greater degree than the attack. The attacker, by selecting his point of attack and concentrating his forces against it, has already overcome half the difficulties, while the defender finds that the mountains have a paralysing effect on his efforts to develop a counter offensive. Successful timing is the essence of the counter attack, but the difficulties of timing are greatly increased by mountainous ground and the absence of good lateral communications.

The crests of the Vosges were, therefore, an unsuitable terrain in which to seek a decision by fighting a defensive battle.

(iii) The last of our alternatives remains, and that is the plan which seemed to offer the best chance of success. A retirement through the Vosges would have brought MacMahon into closer touch with the Emperor, and would have imposed upon the Crown Prince the delicate operation of forcing the passage of the mountains with the prospect of being attacked when he debouched. The mountains could have been utilized, as Clausewitz says, for a relative defence, *i.e.*, for delay, while a favourable opportunity for attack was sought on the far side.

We have already seen how Moltke proposed to deal with this contingency. Should the French cross the Vosges the Crown Prince was to move "along the Palatinate frontier towards the Saar," so as to be in a position to co-operate with the IInd Army by the 9th August.

MacMahon, however, was probably more concerned with getting his troops ready to take the field, and with fears of being forestalled by the enemy, than by such considerations as the above. On the 2nd August he issued orders for a partial concentration. The 3rd Division 1st Corps was to move from Strasburg to Reichshoffen, Niederbronn, and Woerth on the 3rd August.

On the 4th August the following moves were to take place :—

VIIth Corps .. Dumesnil's Division to move by rail from Colmar to Strasburg.

Remainder of Corps to watch the Trouée de Belfort.

Ist Corps .. 2nd Division (A. Douay) from Hagenau to Weissenburg and to hold the Pigeonnier Pass.

1st Division (Ducrot) from Reichshoffen to Lembach.

4th Division from Strasburg to Hagenau when relieved by Dumesnil.

Michel's Cavalry Brigade to Brumath.

In consequence of a report received on the evening of the 2nd August that the Germans intended to occupy Weissenburg on the following day the moves arranged for the 4th August were ordered to take place on the 3rd.

The dispositions of the French troops in Alsace on the evening of the 3rd August are shown in Map III, and it is interesting to compare their dispersion with the concentration of the IIIrd German Army at the same time.

The reasons for the French dispositions are instructive. The greater part of the VIIth Corps was detained near Belfort on account of the operations of Colonel von Seubert's detachment on the Upper Rhine. A flying column had been formed under that officer to allay the fears of the South Germans, and to hold as many French troops as

possible to the south. It was admirably handled and fulfilled its purpose to the letter.

The 1st and 2nd Divisions were ordered to the frontier, primarily to join hands with the troops of the Vth Corps and to prevent an irruption into French territory, and the move was hastened because of a report that the Germans intended to occupy Weissenburg, where much of the bread for the troops was being baked.

So instead of a well thought-out plan for concentrating the available forces, protected by adequate covering troops, with a force of independent cavalry ready to seek information, we have the different Corps assembling in widely scattered areas, portions of the troops detained far from the scene of the coming conflict by the action of an insignificant detachment, and other troops moving into a dangerously exposed position to prevent the occupation of a frontier town, on which the troops very wrongly depended for their supplies.

The art of assembling an army, protecting it by covering troops, and using the cavalry for exploration, was indeed not understood in France at that time.

Let us assume that MacMahon was in a position to concentrate the 1st and VIIth Corps and Duhesme's Cavalry Division of three brigades by the 1st August. How should he have set about such a task according to the views which prevail on the subject at present?

The two Corps consisted of seven divisions. It may well have been considered essential to leave a detachment to watch the Upper Rhine, the strength of which should have been kept as low as possible. It should not have exceeded a division, and might have been posted at Mulhausen.

Of the remainder, five divisions might have been assembled in the area Strasburg-Brumath-Saverne-Mutzig, with three divisions in first line and two in second line.

Ducrot's Division might have been placed at Hagenau as advanced guard to the army, furnishing posts on the line Seltz (to watch the bridge over the Rhine), Soultz, Lembach, towards Sturtzelbronn, where hands could have been joined with the covering detachments of the Vth Corps.

A portion of the available cavalry might have been associated with these covering troops to assist in the work of protection, say two regiments, while the remaining cavalry might have assembled at Reichshoffen with a view to engaging in extended reconnaissance across the frontier when the moment was considered favourable.

These suggested dispositions provide a cavalry force suitably placed to engage in reconnaissance when the right moment arrives, a protective screen of posts composed of all arms, supported by a division as advanced guard to the army, and the main army disposed in depth so that it can advance, retire, or manœuvre as circumstances may dictate.

The relations between the tasks to be carried out by independent cavalry and a general advanced guard and the command of these two forces are questions of great importance, which are capable of illustration by this example. Is it legitimate to place the independent cavalry and the most advanced infantry formation under one commander and form the whole into a general advanced guard? The answer must depend on the nature of the task that it is intended to assign to the independent cavalry. The tasks of an advanced guard are to reconnoitre, if necessary by fighting, and to protect the main body by gaining for it sufficient time to close up and deploy if attacked. It follows that if it is intended to give the independent cavalry a task which might necessitate their moving wide to a flank, leaving the front of the army uncovered, they should not form part of the general advanced guard, or be made subject to the orders of the commander of that force. Conversely, to support the independent cavalry in such circumstances by a force of the other arms might place the supporting force in the position of an isolated detachment. The independent cavalry should, therefore, only form part of the general advanced guard, and be placed under the orders of the advanced guard commander, when the scope of the reconnaissance is restricted, and it is possible to combine the duties of reconnaissance and protection.

In the case under discussion the area of operations was restricted by the Vosges on the West and the Rhine on the East. A general advanced guard composed of a strong force of cavalry supported by a division, if ordered to move forward towards the Lauter, might well combine the duties of reconnaissance and protection in this restricted area, and act under the orders of a single commander, provided the moment for launching the cavalry was suitably chosen and it was understood that the distance to which their reconnaissances could be pressed must depend on the capacity of the advanced division to support them while affording the necessary protection to the army.

If, on the other hand, it were considered desirable in such a case to employ the main force of cavalry in reconnaissance beyond the Rhine, it would be very injudicious to support such a reconnaissance by an infantry formation. A dangerously isolated detachment would be formed, and in such a case the action of the infantry should be limited to holding passages over the Rhine to facilitate the withdrawal of the cavalry when their task was accomplished.

A good example of the combination of the main cavalry force with a strong force of infantry for the purpose of forming an advanced guard is to be found in the Jena campaign. During the advance of the Grand Army in the celebrated "battalion square" between the 8th and 14th October, Murat's cavalry and Bernadotte's Corps, moving ahead of the centre column, formed the advanced guard of the army.

Bernadotte, who was placed by Napoleon under Murat's orders, was half-a-day's march in front of Davout, while the cavalry moved only a short distance ahead of Bernadotte. These dispositions were maintained during the march through the Thuringian Forest and after passing the Saale till the 12th October. Up to that time Napoleon had not divined the Prussian Commander's intention, nor had he located his main forces. Such information as he possessed pointed to the main concentration of the enemy being on the left bank of the Saale. Accordingly he wheeled his army to the left, Davout moving to Naumburg, Lannes to Jena, and Augereau, on the left bank of the Saale, to Calila. But Murat and Bernadotte continued to move north to Zeitz, the light cavalry reconnoitring to the gates of Leipzig. It was not till the 13th October that this advanced guard was broken up and Bernadotte was ordered to join Davout at Naumburg while Murat moved west to the Saale. It was Lannes, therefore, and not Murat, who located Prince Hohenlohe's army at Jena on the 13th October, the cavalry reconnaissances to the north having yielded purely negative information.

The circumstances, however, do not form by any means an exact parallel with those under discussion. While it was necessary for Napoleon's army to traverse the Thuringian Forest, it was uncertain in which direction the enemy would be encountered when the army emerged from the defiles, whether on the right or the left bank of the Saale. If there had been a reasonable certainty that the enemy would concentrate in the district between the Saale and the Elster this close association of Murat and Bernadotte as a general advanced guard to the army would have fulfilled all the requirements of the case. The cavalry could hardly have missed finding the enemy in such a restricted area, and the support of a Corps behind them would have greatly facilitated the pushing back of the enemy's advanced troops and the clearing up of the situation. If the enemy were to assume the offensive the resistance offered by the Corps would have allowed the army to close up and deploy.

Seeing, however, that so much uncertainty existed as to the direction in which the enemy would be found, some explanation must be sought for the limitations placed by Napoleon on the scope of the movements of his cavalry. Two reasons have been assigned for his dispositions. He is said to have wished to profess pacific intentions up to the last possible minute, a consideration which may have influenced him in keeping his cavalry back till the army actually advanced, but could hardly account for the method of their employment after passing the defiles of the forest. The more likely explanation is that he considered the Prussian cavalry superior to his own, and did not wish to run any risk of an initial reverse.

Whatever Napoleon's reasons may have been it must be admitted that in the circumstances of the case instructions to the cavalry to

seek out and locate the enemy's main forces would have accorded better with the views on the subject now held. As such instructions would certainly have taken the bulk of the cavalry to the left bank of the Saale there would have been considerable risk in supporting them with an infantry formation, as was proved by the dangers incurred by Augereau and Lannes when separated from the remainder of the army by the Saale on the 12th and 13th October.

THE ADVANCE OF THE 2ND DIVISION TO WEISSENBURG.

We have seen above the circumstances in which the 1st and 2nd Divisions of the 1st Corps moved forward to the frontier on the 3rd August. MacMahon's order of the 2nd August placed both divisions under the orders of Ducrot, but at the same time the Marshal issued orders direct to the 2nd Division as to the position to be occupied at Weissenburg. This led to the receipt of conflicting orders by General Abel Douay.

MacMahon ordered him to put the bulk of his division in Weissenburg and the valley of the Lauter, where they would have been commanded from the high ground to the North of the river, which was already occupied by the enemy.

Ducrot ordered him to put a battalion in Weissenburg, to dispose the remainder of his force on the Geisberg ridge to the South of the town and to reconnoitre with his cavalry in the morning.

But what was worse than these conflicting orders was that General Douay was not informed of the object of the move of his division to Weissenburg. His orders did not include instructions as to how he was to act in given circumstances, nor was such information as was available as to the enemy communicated to him. He did not know, therefore, whether there was any likelihood of the enemy assuming the offensive immediately, nor did he know whether if attacked he would be supported or whether he should fight a delaying action and retire. And yet his dispositions should certainly have depended on his intended action if attacked.

The division marched from Hagenau at 4 A.M., but waited for five hours at Soultz for supplies and stores expected to arrive by train, which never arrived. In the end the troops reached their destination at 8.30 P.M., the cavalry having marched all the way behind the infantry.

General Douay made the following dispositions :—

Headquarters at Steinseltz.

1st Brigade (General Montmarie)—

50th Regiment	..	2 battalions	..	Geisberg Plateau.
		1 battalion	..	Seltz.
74th Regiment	..	2 battalions	..	Geisberg Plateau.
		1 battalion	..	Weissenburg.

2nd Brigade (General Pellé)—

78th Regiment	} Near Shafbusch Farm.
1st Turcos ..	

Divisional Artillery	2 field batteries,	Between the 1st and
	1 machine-gun	2nd Brigades.
	battery	

Septeuil's Cavalry Brigade—

11th Chasseurs	Near the Geisberg.
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3rd Hussars	.. 4 squadrons	.. At Rott.
	1 squadron	.. On Pigeonnier Pass.

The outposts were placed close around camp, owing to the late arrival.

The nearest troops were :—

1st Division on the line Pigeonnier, Climbach, Lembach.

3rd Division at Reichshoffen.

4th Division at Strasburg.

The only troops, therefore, that could possibly come to the assistance of the division if attacked were portions of the 1st Division.

THE GROUND.

The town of Weissenburg is situated on the Lauter, a tributary of the Rhine having its source in the Vosges Mountains. The stream is fordable in places with difficulty. The town is an old dismantled fortress, and in 1870 was still surrounded by lines, consisting of an infantry parapet and ditch, which made a formidable obstacle.

The Lauter runs between two spurs of the Vosges known as the Geisberg and Wolfsberg ridges. The hills from which these spurs protrude are densely wooded and crossed only by mountain paths. The spurs themselves are cultivated and covered by crops, vineyards, and hop gardens.

The open space between the wooded Vosges Mountains and the extensive forest of the Bienwald is not more than $2\frac{1}{2}$ miles in width. In this open space the tactical features of importance are :—

North of the Lauter—the village of Schweigen, the Wolfsberg and its under feature the Windhof.

South of the Lauter—the Weiler ravine, steep, almost precipitous—the Weissenburg railway station and the walled enclosure to the East of it—Altenstadt—St. Remy—the bifurcation of the railway lines—the Vogelsberg—the Geisberg Plateau—the Geisberg—the Gutleithof and the Schafbusch Farm.

The roads by which the Germans advanced were :—

- (i) Ober Otterbach—Schweigen.
- (ii) Steinfeld—Sweighofen.
- (iii) Schaidt—Schleithal.

Those available for the French to retire by were :—

- (i) Viâ the Pigeonnier.
- (ii) Viâ Rott and the Pfaffenschlick Pass.
- (iii) Viâ Riedseltz and the Strasburg road.

THE BATTLE.

At 4 a.m. General Douay sent out a reconnaissance consisting of 1 battalion, 2 squadrons, and a section of artillery. The battalion and the guns took up a position half-way down the Geisberg ridge above Altenstadt. The cavalry went down the road to the Hagenau gate of Weissenburg, then took the Lauterburg road, turned off to the North by the road to Landau and moved towards the frontier to the South of Schweigen. Having heard from the inhabitants that 30,000 Prussians had left Landau and were approaching Weissenburg, they turned eastwards along the frontier and returned by the Kapsweyer road, reaching camp at 7.30 a.m. They had seen only a few German patrols and had taken no steps to verify the information obtained from the inhabitants or to disprove it.

The head of the advanced guard of the 4th Bavarian Division, consisting of 2 squadrons, 2 battalions, and a battery, reached Schweigen at 8 a.m. and as soon as the leading troops emerged from the Southern exit of the village the French troops in Weissenburg and on the Geisberg ridge became visible. The advanced guard battery, escorted by 1 battalion, came into action 600 yards South of Schweigen and opened fire on the town at 8.30 a.m., with the result that the French troops in Weissenburg at once manned the parapet of the old lines, a battery (Captain Didier) came into action just south of the railway station, and General Pellé ordered the 3 battalions of the 1st Turcos into the valley, 2 battalions going to the east of the town and 1 battalion to the west.

General Bothmer, commanding the 4th Bavarian Division, then brought a second battery into action supported on the left by a battalion of the 5th Regiment, and ordered the 10th Chasseurs to work through the vineyards towards the Bitche gate of the town. The superior fire of the Bavarian artillery caused the Didier battery to retire 500 yards, but the infantry made very slow progress.

About this time Bothmer received a report that a considerable force of French infantry could be seen moving on the heights beyond Weissenburg, apparently with the intention of attacking his right flank. These troops were probably 2 battalions 78th Regiment marching up the road to the Pigeonnier Pass to relieve the 96th Regiment, in accordance with orders received from General Ducrot. The anxiety caused by this report led Bothmer to send 1 battalion to the Schloss St. Paul, $1\frac{1}{2}$ battalions towards Guttenburg and Dorrenbach, (in the mountains to the North-West of Schweigen) and 1 battalion to the west of Schweigen to protect his right. This left

him with only two battalions in hand, which were drawn up just south of Schweigen.

The fire of a French battery in action near the 3 Poplars, coupled with that of the Didier battery now in action again, had already caused the withdrawal of 2 Bavarian batteries south of Schweigen, although their losses had been slight. The offensive of the 4th Bavarian Division was thus held in check up till 10.30 a.m.

The advanced guard of the Vth Corps reached Schweighofen at 8.30 a.m. Here it separated into two portions :—

3 squadrons ..	}	Under Colonel Rex, moved on St. Remy.
3 battalions ..		
1 battery ..		
1 squadron ..	}	Under Colonel Bothmer, moved on Wooghauser.
3 battalions ..		
1 battery ..		

The head of the main body had now reached Klein-Steinfeld, where the sound of the guns could be heard, so General von Kirchbach, commanding the Vth Corps, sent to General Bothmer to ask how he could best assist him. The latter replied that he was uneasy about his right flank, and that the Vth Corps would help him best by bringing pressure to bear on the enemy's right.

The Crown Prince arrived at Schweigen at 9.15 a.m., and sent to the commanders of the Vth and XIth Corps to hurry them up.

The advanced guard of the XIth Corps reached Bienwald Hut at 7 a.m., and crossed the Lauter at once. By 8.30 a.m. the 42nd Brigade had occupied the Schleithal heights. The sound of the firing was now heard, and General Von Bose, commanding the corps, left the 42nd Brigade in position and diverted the march of the 41st Brigade by the Lauterburg road on Altenstadt. It will be seen that this brigade was now about to clash with the advanced guard of the Vth Corps. Colonel Bothmer's portion of the Vth Corps advanced guard had not heard the firing and remained in the valley of the Lauter till 11 a.m. Von Bose, however, met Colonel Rex and arranged with him that the Vth Corps should move on Altenstadt, while the XIth Corps moved south through the Niederwald to attack the enemy's right flank on the Geisberg ridge.

At 10.30 a.m. General Bothmer considered that the Vth Corps had made sufficient progress to justify him in renewing the offensive. He therefore launched 3 battalions, with 2 battalions in second line, supported by 2 batteries on the Windhof, against the 2 battalions of the Turcos in the valley East of Weissenburg. At the same time Rex's column advancing through Altenstadt assailed the same battalions in flank. A most stubborn fight ensued, the Turcos being gradually pressed back by superior numbers on the railway station and a walled enclosure to the east of it.

We must now turn for a moment to the French side.

Although General Douay had received at 6 a.m. a telegram from MacMahon warning him to look out for an attack by superior forces, the French were completely surprised when the advanced guard battery of the 4th Bavarian Division opened fire on Weissenburg. The troops stood to arms, and in the absence of General Douay, who was at Steinseltz, General Pellé ordered the 1st Turcos and the Didier battery into the valley as has already been described. At the same time General Montmarie ordered the 1st and 3rd Battalions 50th Regiment to take post covering the Geisberg, facing east and north. These 2 battalions took up their positions about 200 yards down the slope of the ridge, with skirmishers to the front. The reserves, cavalry and artillery, took post behind the slope of the ridge.

Such was the position of affairs at 9 a.m. when General Douay appeared on the field. He approved of the dispositions of his subordinates, and telegraphed to MacMahon informing him of the situation that had arisen. The first steps taken by Douay were to send a cavalry officers' patrol, supported by a squadron, to reconnoitre towards the Niederwald, and to order the remaining batteries of the Divisional Artillery into action. The officers' patrol, after being fired on, returned, reporting that they had seen a division of the enemy. The 2 batteries, one of which was a machine-gun battery, came into action 500 yards north of the 3 Poplars.

We have already seen how the French artillery was successful in causing the withdrawal of the 2 batteries of the 4th Bavarian Division. Their success was short lived, for the Germans brought 5 batteries into action on the Windhof, the 2 batteries belonging to the advanced guards of the Vth Corps in the angle formed by the railway lines, and 2 batteries of the XIth Corps east of the Gutleithof. This greatly superior force of artillery had all the advantages of a converging fire, and very soon reduced the French artillery to impotence.

At 10.30 a.m. it was clear to Douay that his right flank was threatened by a greatly superior force, and that his retreat would be compromised if much longer delayed. He therefore gave the order for the 2nd Brigade and the battalion of the 74th Regiment forming the garrison of Weissenburg to retire. Immediately afterwards he was killed by a shrapnel bullet, while near the artillery position at the 3 Poplars.

The command devolved upon General Pellé, who was at the time occupied with the fight in the valley. He received the order from General Douay to retire, but owing to their being engaged at very close quarters he judged it impossible to extricate the 2nd and 3rd Battalions of the 1st Turcos without the assistance of fresh troops. He therefore sent to the 4th Battalion, now west of the town, to move to the east, and cover the withdrawal of the other two battalions. This took some time to carry out, and in the meanwhile the 2nd and

3rd Battalions were assailed by greatly superior forces, in front by the Bavarians and in flank by the troops of Rex's advanced guard. In spite of the most heroic resistance and more than one successful counterstroke they were eventually driven into a confined space about the railway station.

Shortly after 12 o'clock the 4th Battalion was in position and the 2nd and 3rd Battalions withdrew to their camp on the Geisberg ridge, where they struck their tents, replenished their ammunition, put on their kits and marched off in good order to the Pfaffenschlick Pass. Their losses had been very heavy, but their *moral* was quite unshaken.

The Didier battery, which had done its utmost to support the Turcos to the last moment, withdrew at the same time to the crest of the ridge.

It was not till after 12 o'clock that Pellé heard of the death of Douay. He at once went to the Geisberg Plateau to supervise the arrangements for retreat. But it now became apparent that the force was so deeply implicated that it could not be hastily withdrawn. There had been delay in getting the transport clear and it was blocking the roads. The fight in the valley, moreover, had been so prolonged that the attack on the right flank was already beginning to take effect.

Pellé consulted Septeuil as to what use could be made of the cavalry, and they agreed that the ground was unsuitable for cavalry action. The brigade was therefore ordered to retire *viâ* Steinseltz. The artillery were also ordered to withdraw to the Steinseltz ridge to cover the retirement of the infantry. They got away with the loss of 1 gun, which was disabled.

Interest now centred round the Geisberg. The situation in the neighbourhood of the chateau was as follows :—

The 1st Battalion, 50th Regiment, posted East of the Geisberg, the 3rd Battalion 50th Regiment, and the 3rd Battalion 74th Regiment, to the North of the chateau, were attacked on the East by the 41st Brigade, XIth Corps, and on the North by Rex and Bothmer, Vth Corps. They were subject also to a converging artillery fire.

The 1st Battalion 74th Regiment, up to now in reserve, was deployed to help the retirement of the 1st Battalion 50th Regiment. General Montmarie was successful in extricating the 3rd Battalion 50th Regiment, and the 3rd Battalion 74th Regiment, and they retired to the Shafbusch farm. The other 2 battalions, however, became very hotly engaged, and when they retired about 200 men took refuge in the Geisberg instead of withdrawing with their battalions.

Commandant Cécile was in command at the Geisberg. He now organized the defenders, who gave a good account of themselves. The chateau is a naturally strong place, practically proof against

assault, but as it was clear that it must eventually be surrounded, Commandant Cécile decided to attempt to break out towards the 3 Poplars. He rode out gallantly at the head of his men and was killed 50 yards from the gate. The men then withdrew again into the chateau. In spite of repeated attempts and heavy losses it was found impossible to capture the place till artillery had been brought up and the gate blown in. At 3 p.m. the garrison surrendered, 200 unwounded prisoners being taken.

Meanwhile the debris of the 4 battalions of the 50th and 74th Regiments had re-formed at the Shafbusch farm, where they were attacked by the troops pressing on after the capture of the Geisberg and by the 41st Brigade now moving up the Riedseltz valley. The Germans assaulted and captured the farm, the French retiring in disorder, some by Kleebourg and the Pfaffenschlick Pass and others by Soultz to Hagenau.

The 4th Cavalry Division had been delayed at Billigheim and touch was lost before the Crown Prince ordered a regiment of divisional cavalry to pursue. This regiment went as far as Soultz, which was found to be occupied, so they returned to make their report.

Douay's order to the Commandant of Weissenburg to withdraw the garrison was delivered by the Staff Officer sent with the message to a N.C.O. at the gate of the town and did not reach the Commandant till 1 p.m. By that time retirement was impossible, and after trying vainly to break out at the different gates of the town the garrison surrendered.

COMMENTS.

The Causes of the Defeat of the 2nd Division.

The consideration of the causes of the defeat of the 2nd Division will be facilitated if answers can be found to the following questions :—

(i) Why was the division placed in such an exposed position, beyond the reach of support ?

(ii) How did it come to allow itself to be surprised ?

(iii) Why was it unable to break off the action and retire without suffering complete defeat ?

(i) We have already seen how haphazard were the arrangements for the concentration of the French Army, and how unsuitable were the dispositions for covering that concentration. There was a complete absence of carefully thought out plans, put into execution with businesslike determination. The movements of such troops as were ready to take the field were governed by the latest rumour, and questions connected with the supply and equipment of the troops were sometimes a compelling cause. But at the root of the whole evil was the false strategical conception of trying to guard all avenues

of approach, and prevent the invasion of French territory. It is not suggested that the frontier should not have been closely watched, but the forces employed on or close to the frontier were out of all proportion to the necessities of the cases. The bulk of the army was employed in screening, and there was little left to screen.

We must condemn, therefore, as unsound the move of the 1st and 2nd Divisions to the frontier on the 3rd August, and we must also condemn the indefinite nature of the instructions issued by Marshal MacMahon and General Ducrot to General Douay. Had the last-named officer known definitely that he was placed at Weissenburg as an advanced guard to cover the concentration of the army he would have known exactly how to dispose his troops and how to act in the varying circumstances that might arise. There is, however, no indication that Douay ever received such instructions, and the answer to our question must be that the division was thrust forward into a dangerously isolated position in pursuance of the false strategical principle of attempting to guard every avenue of approach.

(ii) The division was surprised in its bivouac owing to the inadequacy of the reconnaissances carried out by General Douay. Septeuil's Cavalry Brigade had been placed by Ducrot under Douay's immediate orders. It was available on the 3rd August to move ahead of the 2nd Division to the frontier and carry out reconnaissances across the Lauter. If the brigade had been handled on the 3rd in accordance with the principles laid down in our Field Service Regulations for the employment of independent cavalry for exploration, officers' patrols, supported by contact squadrons could have penetrated between the German covering detachments, and the bulk of the brigade could have been kept concentrated, either to support the reconnoitring detachments, to form a rallying point on which they could fall back, or to engage any hostile force of cavalry that endeavoured to prevent the carrying out of their mission. There was no force of hostile cavalry nearer than the 4th Cavalry Division at Billigheim, and that division appears to have been ill-prepared at the moment to undertake active operations. Instead of acting as suggested Septeuil's Cavalry Brigade marched to Weissenburg in rear of the 2nd Division, and reached the Geisberg Plateau after dark.

But even on the morning of the 4th August it was not too late to avert a surprise, and, moreover, Ducrot's orders to Douay were to use the cavalry to reconnoitre beyond Weissenburg or in the direction of Lauterburg. The reconnaissance actually conducted by 2 squadrons on the morning of the 4th August was puerile in its conception as well as in its execution, and its insufficiency was the immediate cause of the division being surprised. For this General Douay must be held responsible.

(iii) When the first shot was fired by the advanced guard battery of the 4th Bavarian Division, General Douay was at his headquarters at Steinseltz. General Pellé acted on a soldierly impulse and ordered the 3 battalions of the 1st Turcos into the valley to engage the enemy. In such circumstances it is not possible to quarrel with his decision to obtain further information as to the situation by getting into touch with the enemy at once. But it is very questionable whether it was advisable to implicate such a large proportion of the available infantry in the valley at the outset. However, owing to the somewhat feeble conduct of the preliminary operations by the 4th Bavarian Division, no great harm resulted from Pellé's action up to 10 a.m. At that hour Douay, who had obtained information by means of a cavalry officers' patrol, which confirmed his fears for the safety of his right flank, gave the order to retire. This order was timely, but the gallant General's death was most untimely, and was the direct cause of the severe reverse suffered by the division.

Pellé was engaged with the Turcos in the valley, and such a large force was now implicated in a fight at close quarters, that he judged it impossible to withdraw without support. He therefore sent for the 4th Battalion to come to the support of the 2nd and 3rd Battalions. This took an hour to carry out, and in the meanwhile every minute's delay made the withdrawal of the 2nd and 3rd Battalions more difficult, added to the casualties, and enabled the Germans to get to closer grips with the right wing on the Geisberg ridge. If only 1 battalion had been engaged in the valley in the first instance, supported by a second battalion, Douay's order for the retirement could have been carried out without delay, the right could easily have maintained itself till the troops in the valley were clear, and the division could have withdrawn having fulfilled the functions of an advanced guard. That is to say, it would have compelled the greater part of the greatly superior German Army to deploy, would have reconnoitred its strength and divined its purpose, and would have withdrawn with slight loss, having inflicted greater loss on its opponents and delayed their march.

But in the French Army of those days only two kinds of action were understood, to attack or to defend. To delay the enemy by manœuvre, to make him take 3 or 4 hours to advance 3 or 4 miles was a forgotten art.

In the words of our Field Service Regulations—"The guiding principle in all delaying action must be that when the enemy has liberty to manœuvre, the passive occupation of a position, however strong, can rarely be justified, and always involves the risk of crushing defeat; under these conditions a delaying force must manœuvre so as to force the enemy to deploy as often as possible, but should rarely accept battle."

THE OCCUPATION OF THE GROUND BY THE FRENCH.

As an academic exercise it is interesting to consider how the ground could be occupied to the best advantage, with a view to fighting a delaying action against superior forces.

We must remember that the crest of the Schweigen ridge was occupied by the enemy's covering troops, and that there were urgent reasons connected with supply for occupying Weissenburg.

These conditions indicate the desirability of keeping the bulk of the troops as much concealed as possible under cover of the Geisberg ridge, while a suitable portion of the force, say $1\frac{1}{2}$ to 2 battalions, takes up the best outpost line available. The nature and position of this outpost line is a matter open to discussion, but a suitable arrangement would appear to be to occupy Weissenburg, Altenstadt, and the Gutleithof as advanced posts. Weissenburg would not require to be artificially strengthened, but the outskirts of Altenstadt and the Gutleithof should be placed in a state of defence with the assistance of the Engineers, and troops should be economised by connecting these posts only lightly, for to penetrate between them before they had been captured would not be an easy operation.

Localities such as the Geisberg and the Shafbusch farm should be placed in a state of defence and some trenches might well be prepared on the Vogelsberg and on the high ground South-West of Weissenburg covering the roads leading up the Pigeonnier and to Rott. Alternative emplacements should be prepared for the artillery facing North and East.

These dispositions would prevent surprise and keep the strength of the force concealed from the enemy. They would compel the enemy to deploy on a broad front at a considerable distance from the main body and allow his strength to be reconnoitred by the advanced posts before they gave way. The withdrawal of the advanced posts could be covered by artillery fire, and finally the main force could retire in successive echelons from the right, provided it was intended to retreat by either the Pfaffenschlick or Pigeonnier Passes, or from the left if it was intended to retire by Soultz.

When it became necessary to occupy the position firing lines should be formed, and for that matter trenches should be sited, with a good field of fire at distant and medium ranges, dead ground immediately to the front being of little importance. Such positions have the effect of protecting the infantry from the fire of the attacking artillery, which will probably be very superior in numbers, and facilitate withdrawal. Positions well down the forward slope, such as those taken up by the 50th and 74th Regiments for the defence of the Geisberg ridge, have on the other hand every disadvantage when the object is only to delay.

As regards the choice of the line of retreat, the right flank is much

more easily assailable than the left, which can only be approached over the steep and thickly wooded spurs of the Vosges and the precipitous Weiler ravine. Everything points, therefore, to retreat by the passes into the Lembach valley and not by the road to Soultz.

FAILURE OF THE FRENCH TROOPS IN THE VICINITY OF THE BATTLEFIELD TO SUPPORT THE 2ND DIVISION.

The 78th Regiment, belonging to the 2nd Division, left the Geisberg Plateau at 5 a.m. on the 4th August, in accordance with orders from General Ducrot, to relieve the 96th Regiment belonging to the 1st Division, which was posted at Klimbach and was holding the Pigeonnier and Pfaffenschlick Passes. The 96th Regiment when relieved was to move further West to Wingen at the head of the Lembach valley. This disposition, it will be noted, while it tended to concentrate the 1st Division, had the opposite effect as regards the 2nd Division and deprived General Douay of a considerable portion of his available infantry.

The 78th Regiment climbed to the summit of the Pigeonnier Pass and by 8 a.m. the bulk of the Regiment had reached Klimbach, having left several observation posts on the passes. The sound of the guns at Weissenburg was clearly audible at Klimbach, and the progress of the battle could be watched distinctly with glasses from the Pigeonnier. But the regiment remained inactive throughout the day, and its commander did not even think of sending a mounted officer to General Douay for orders. Possibly he was satisfied with carrying out the orders which he had already received, but when General Ducrot issued instructions for him to relieve the 96th Regiment he was certainly not aware that the 2nd Division would be attacked next day. It was the duty of the commander of the 78th Regiment to act on his own judgment, and it is only possible to conclude either that his judgment was at fault or that he failed in his duty.

The 96th Regiment was to move to Wingen. The sound of the guns was heard "during the morning," the move was stopped and the regiment awaited orders, the commander reporting to General Ducrot at 11 a.m. This commanding officer also failed to exercise an initiative which was well within his province, namely, to march to the scene of the action. General Ducrot met Marshal MacMahon on the summit of the Pigeonnier during the early hours of the afternoon but by that time it was too late to succour the 2nd Division.

THE ACTION OF THE 4TH BAVARIAN DIVISION.

A difficult problem presented itself for solution by the commander of the advanced guard of the 4th Bavarian Division when his troops passed through Schweigen and discovered a considerable force of the enemy in their immediate front, wholly unaware of their presence. The arrival of Douay's division at Weissenburg had not

been reported to General Bothmer by his advanced posts, and the Bavarians were as much surprised as the French when they came upon the enemy.

It was imperative to make the most of this unexpected situation. The first object should have been to avoid giving the enemy premature warning, and the second to make use of the advantages conferred by surprise to prevent his escape. The first of these objects should have instilled caution and the withholding of fire of all sorts till a sufficient force was deployed to make a vigorous holding attack. At the same time the enemy might have become aware of his perilous situation at any moment, and the sooner he was attacked the less likely was it that he would escape the inevitable confusion that results from being surprised.

These considerations are conflicting, and the time that can be devoted to preparation before fire is opened must in such circumstances be a matter of judgment. In this case it must be admitted that the action of the artillery of the advanced guard in taking up a position within long range rifle fire of the Weissenburg lines and opening fire on the town before any considerable body of infantry was ready to press the attack was premature and ill advised. It served only to alarm the enemy. In extenuation, it may be argued that it was the opening of artillery fire on the town which drew the Turcos into the valley, and that this contributed greatly to the difficulty experienced by the French in withdrawing. But it has already been shown that up till 10.30 a.m. the French were free to withdraw, and would have done so if General Douay had not been killed. This argument must, therefore, be dismissed.

Subsequently the somewhat feeble efforts of the infantry of the division to get to close quarters with the enemy in Weissenburg corresponded no better to the necessities of the situation.

Once having alarmed the enemy it was essential to attack with vigour and hold him to his ground, and the most energetic action possible was called for. It cannot be said that it was forthcoming. Instead of concentrating his energies on a vigorous attack, General Bothmer seems to have been inspired by the fear of what the forest-clad mountains on his right flank might contain, and this fear of the unknown, fostered by the report of a movement of French infantry in a westerly direction, caused him to disseminate a great part of his force in purely protective dispositions. There was, as a fact, little justification for his fears. Although the French were known to be in strength at Bitche, the approach to Bothmer's right flank must necessarily have been through the most difficult country, passable only for small forces of infantry and quite impracticable for the co-operation of the arms. An attack in force was not to be expected and the situation would have been adequately met by reconnaissances

on the parts of the divisional cavalry along the few mountain paths that led in a north-westerly direction.

It is also impossible to justify the withdrawal of the 2 batteries of artillery from action south of Schweigen after losing 1 man killed and 8 wounded.

THE EXERCISE OF THE CHIEF COMMAND BY THE CROWN PRINCE, THE CO-OPERATION OF THE SUBORDINATE GERMAN COMMANDERS, AND THE IMPETUOSITY OF THE ATTACK.

The only recorded orders of the Crown Prince on the field of battle are those sent when he first arrived at Schweigen at 9.15 a.m. to hurry up the Vth and XIth Corps, and the order to the 4th Regiment of Dragoons to pursue the enemy at the close of the action.

Was it not possible or desirable for him to intervene with greater effect? The spirit of loyal co-operation which inspired the Corps Commanders brought them to the scene of the action without orders, and they at once consulted one another as to the most suitable action to be taken. For instance the commander of the Vth Corps asked the commander of the 4th Bavarian Division how he could best assist him, and acted at once on his suggestion; the commander of the XIth Corps consulted Colonel Rex, and diverted the march of his leading troops so that they should not clash with those of the Vth Corps.

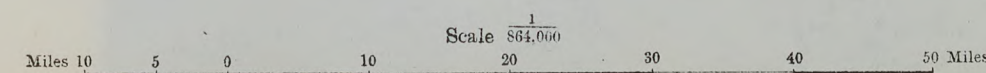
Probably no orders issued by the Crown Prince could have reached the Corps Commanders in time to better the action taken by them spontaneously. But when the enemy's advanced troops had been driven from the valley, and it became necessary to press the attack on the Geisberg ridge, an opportunity seems to have been afforded for the effective intervention of the Chief Command. The German casualties at Weissenburg were very heavy and amounted to nearly 90 officers and 1,500 men. These heavy losses were greatly due to the precipitate manner in which the troops were thrown into the fight and the way in which the action was allowed to develop with little or no preparation. This was particularly the case in the attack on the Geisberg. It was a naturally strong tactical point, proof against assault, and it was essential to prepare the attack with artillery fire. The Geisberg and the Shafbusch farms acted as magnets to the attack, and no use was made of the great superiority of force available to envelop completely the enemy's position.

Surely here was an opportunity for the timely intervention of the Crown Prince, in order to co-ordinate the efforts of the different corps and assure the success of the operation without undue haste and undue losses. Portions of the XIth Corps might have been directed on Riedseltz, and while this turning movement was developing, the attack of the Vth Corps on the Geisberg and the Shafbusch farms might have been adequately prepared. It may be argued that any

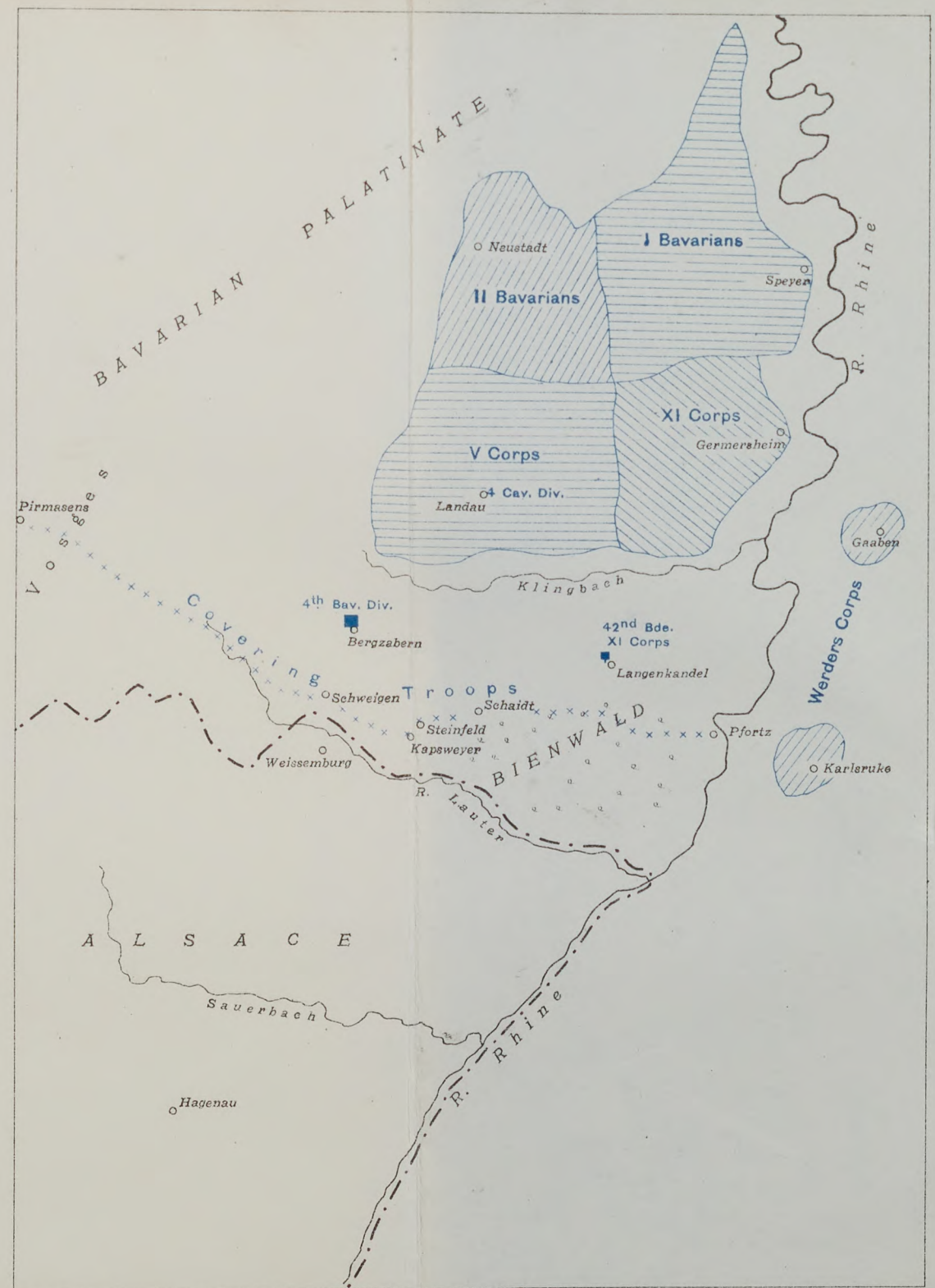
THE FRANCO-GERMAN FRONTIER



Ordnance Survey, Southampton, 1912.



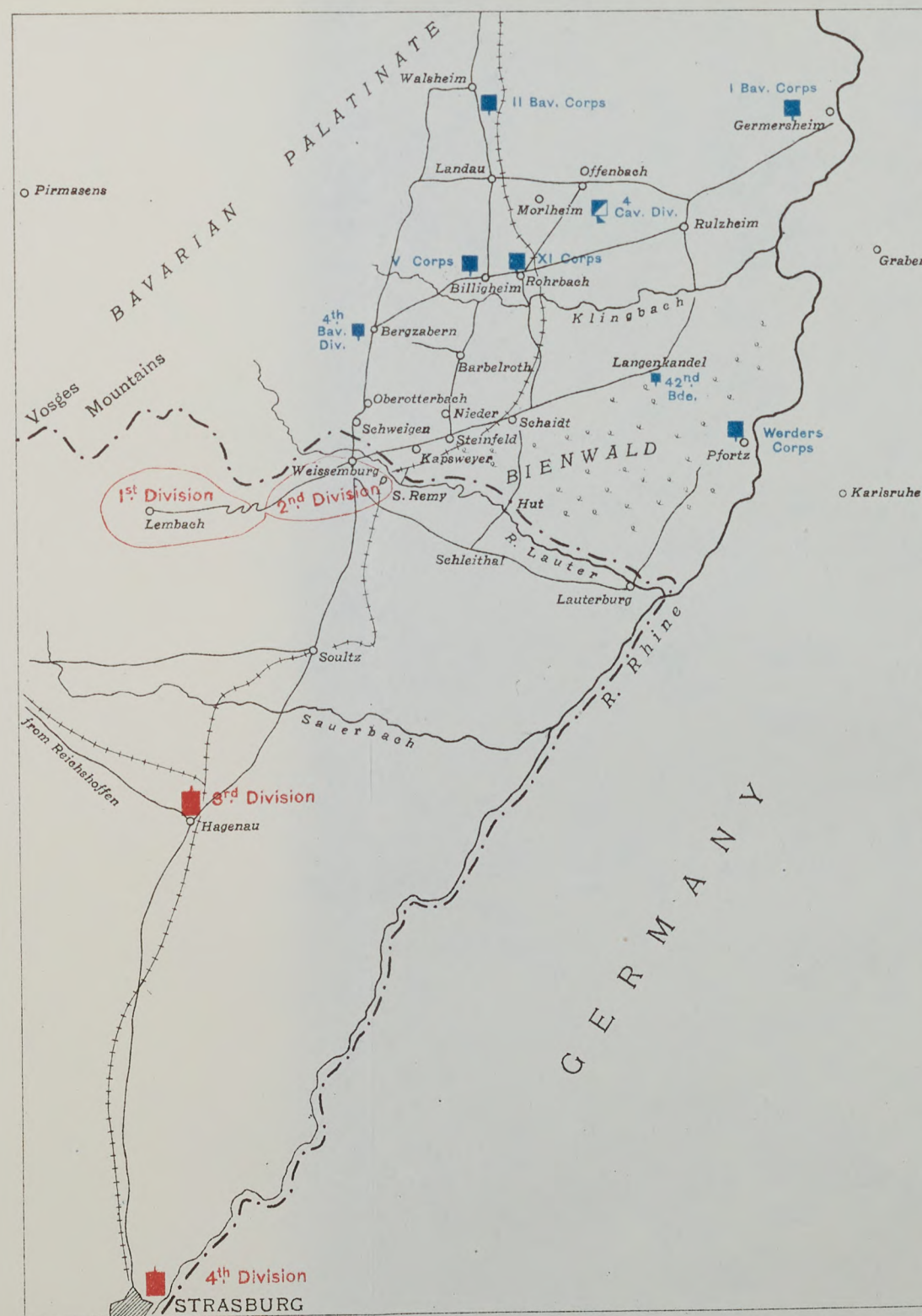
ORIGINAL CONCENTRATION OF GERMAN III ARMY



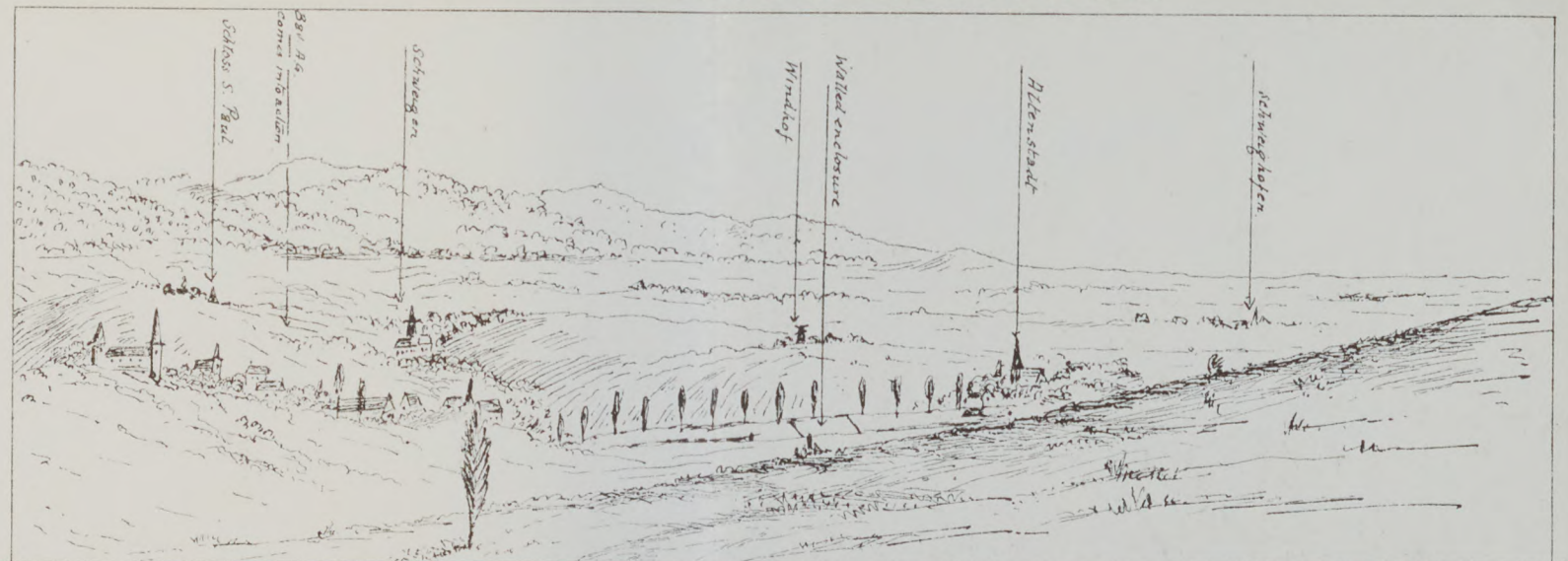
Scale $\frac{1}{432,000}$
 Miles 5 4 3 2 1 0 5 10 15 20 Miles

Ordnance Survey, Southampton, 1912.

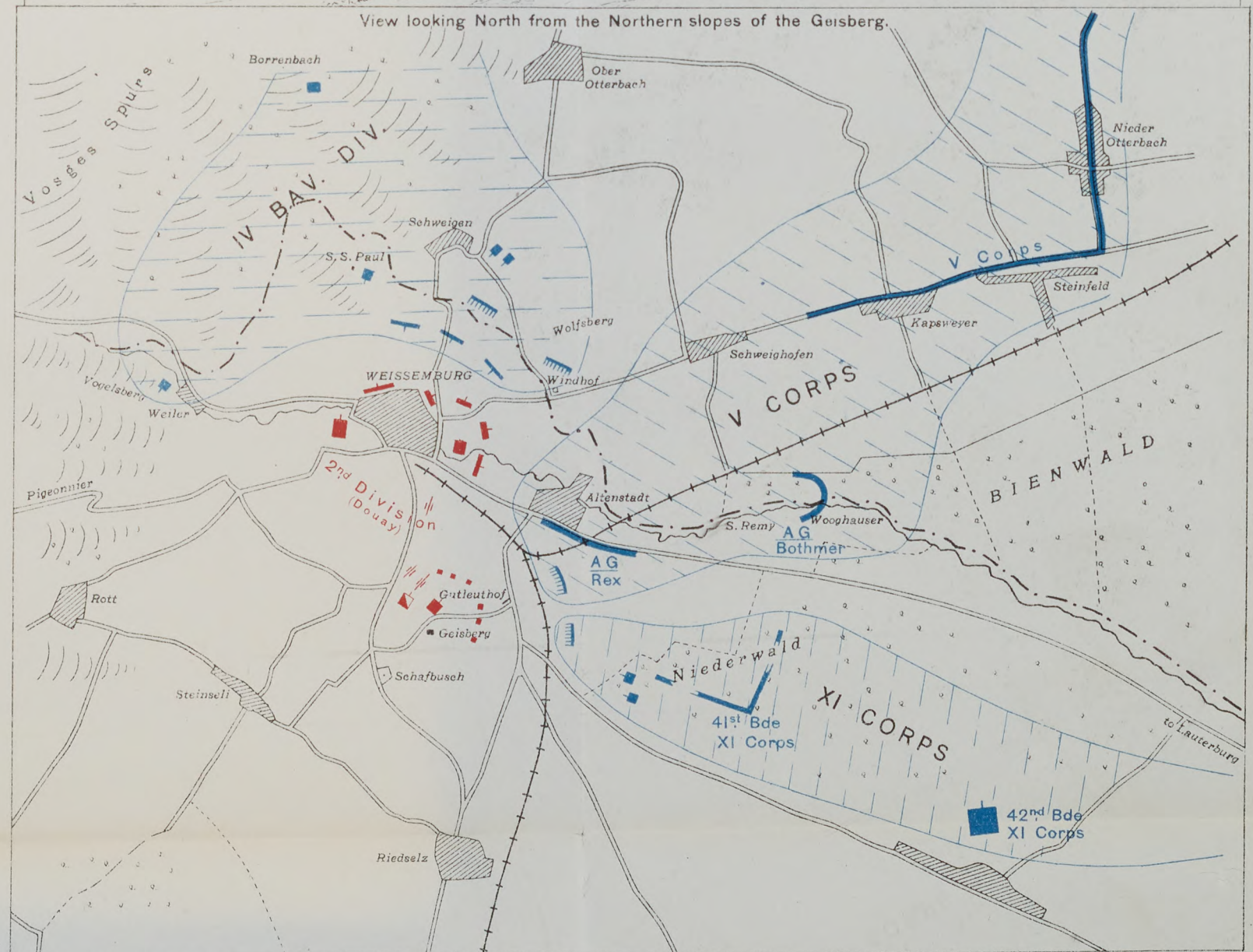
OPPOSING ARMIES ON EVENING OF 3rd AUGUST.



Scale 1:432,000
 Miles 5 4 3 2 1 0 5 10 15 20 Miles
 Ordnance Survey, Southampton, 1912.



View looking North from the Northern slopes of the Geisberg.



Ordnance Survey Office, Southampton, 1912.

Miles 1 $\frac{3}{4}$ $\frac{1}{2}$ $\frac{1}{4}$ 0 Scale $\frac{1}{63,360}$ 1 2 3 4 Miles

delay would have afforded to the enemy the opportunity to escape from their uncomfortable situation. This would only have been the case if the turning movement had been arrested and the frontal attack had ceased to be pressed. As long as the turning movement continued without interruption it promised in the end greater results than a direct attack, and it would surely have been possible to press the frontal attack sufficiently to prevent the enemy's escape without actually assaulting the Geisberg before the attack on it had been adequately prepared.

Impetuosity is a good fault, but it leads to heavy casualties, and on this occasion it led also to the mixing of units and to a degree of confusion that might well have prejudiced the success of the operation if the enemy's force had not been numerically insignificant.

The Crown Prince failed to organize an effective pursuit. The 4th Cavalry Division had been delayed at Billigheim, and the order sent to bring it forward to the neighbourhood of Altenstadt failed to reach it in time. But in the absence of the 4th Cavalry Division a considerable force of divisional cavalry might still have been collected, and to employ a single cavalry regiment for this purpose must be looked upon as totally inadequate. For this regiment to abandon touch with the enemy and return "to report" was inexcusable.

XIX.

AN ACCOUNT OF THE BATTLE OF LIAO YANG.¹

By BREVET LIEUT.-COLONEL W. D. BIRD, D.S.O., The Queen's,
General Staff.

(With reference to the application of the principles set forth in
Field Service Regulations, Part I.)

THE battle of Liao Yang possesses a peculiar interest as being probably the decisive episode of the Russo-Japanese war, for here for the first time the two armies met with concentrated forces to decide the question of supremacy.

This, however, does not constitute its sole claim to special attention, for in addition Liao Yang was the first great battle of a new century, when tactical theories evolved from the wars of the XIXth century were subjected to the supreme test of practical trial, and many valuable lessons may therefore be learnt from it. The battle also illustrates with particular clearness the application of the guiding principles of tactics explained in the Field Service Regulations.

The strategical operations initiated by the landing of a Japanese force in Korea in February, 1904, and subsequently expanded into a converging movement of three armies on Liao Yang, resulted towards the end of July in a series of actions in which the Russians were defeated.

Russian operations.—After these reverses the Russians, as was their custom, had retired only as far as they were obliged, and halted in intrenched positions on the hills in the vicinity of An-shan-chan, Lang-tzu-shan, and An-ping. (*See Sketch 1.*)

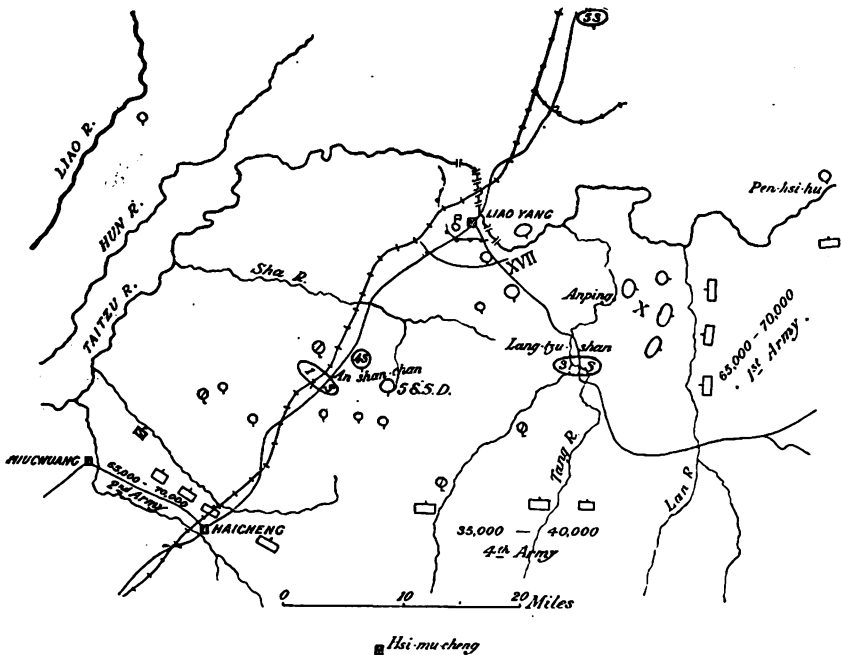
General Kuropatkin, in whose opinion the Russian Army was at this juncture numerically and in every military quality inferior to that of the Japanese, whose strength was estimated at 150,000 bayonets, 4,500 sabres, and 500 guns, or about 170,000 fighting men, was now in grave doubt whether to await their onslaught or to retire, as some of his generals proposed, to the north bank of the Tai-tzu.

¹ A Lecture given to the officers of the 1st Division in December, 1911.

Had it not been for the defeat of the Russian fleet outside Port Arthur on the 10th August, it is possible that the Russians might have withdrawn across the Tai-tzu. This disaster was, however, followed by such alarming reports as to the defensibility of the fortress, that the Viceroy Alexeiev urged that some effort must again be made to assist the garrison, suggesting a demonstration against Oku's, the 2nd Japanese Army, reported to have been weakened by the despatch of troops to Port Arthur.

His recent experiences had convinced Kuropatkin that the Russian Army was in no condition even for a limited offensive, a half measure which, moreover, would probably be productive of harm rather than

SKETCH 1.
RUSSIAN POINT OF VIEW, 24th AUGUST.



good; this alternative was therefore rejected. In addition to helping the garrison of Port Arthur the Russian leader desired however not only to avoid the political disadvantage of abandoning the important city of Liao Yang, and the advanced base which had been established there, but also to gain time for the completion of a series of positions under construction near this place and astride the enemy's probable line of advance. Here he apparently hoped either to be able to fight a successful battle after reinforcement by the 5th Siberian Corps now nearing the front, or to await the two other Corps which were expected—the 1st European, approaching Harbin, and the 6th Siberian—whose arrival would enable the Russians to assume the offensive.

It was therefore decided to await events in the positions held by the army, perhaps in the hope that the rainy season which had now begun would oblige the Japanese to postpone for a time further forward movements ; and Corps commanders were ordered to reconnoitre and to harass the enemy, but if attacked to fall back on Liao Yang, every preparation being made for this eventuality. The Russians consequently held their ground, occupying a frontage of some 50 miles with about 100,000 fighting men, divided into two groups, between which there was a gap of 15 miles of rugged hill and dale. The southern group consisted of the 1st, part of the 2nd Corps including the 5th Siberian Division, and the 4th Siberian Corps, with some mixed detachments which covered the front and kept touch with the Japanese ; the eastern of the 3rd Siberian Corps and X Corps. The Tai-tzu was patrolled for a distance of 25 miles above Pen-hsi-hu ; there was a detachment at this place, and another on the Liao River about 35 miles west of Liao Yang, and reserves, some 30,000-40,000 strong, consisting of the XVII Corps and portions of the 5th Siberian Corps, were at Liao Yang, where the troops were employed in making field works, and at Mukden.

Later, when the bulk of the 5th Siberian Corps had reached Mukden, and news had come that part of the 1st European Corps had arrived at Harbin, Kuropatkin suddenly resolved not only to maintain his present position, but, if possible, to attack.

It is a maxim of war that decisive success cannot be gained by an army that does not at some juncture assume the offensive, and since Kuropatkin now contemplated accepting battle he had the choice either of fighting in his present positions, or in the entrenched lines which were being completed at Liao Yang, with the intention of assuming the offensive on the first favourable opportunity, or of attacking the enemy's troops whilst they were still separated.

The position from An-shan-chan to the Tai-tzu was certainly not ideal for a defensive battle. The line held was extensive, a large gap existed between the two groups, and the eastern group stood with its back to a stream liable to floods which would render the bridges insecure. The reserve, moreover, was small and scattered. The position then was not favourable for a defensive battle, and in such circumstances, the Field Service Regulations advise "manœuvre, when possible, for a more suitable opportunity."

This could without difficulty have been found, for to quote Field Service Regulations, "the nature of the theatre of war had so narrowed the possible lines of advance that the enemy's movements could be foretold within definite limits." The Russians consequently had been able to prepare in advance in the neighbourhood of Liao Yang—that is on the enemy's probable line of advance—two fortified positions whose flanks rested on the Tai-tzu, a river fordable at this season of the year in but few localities, the advanced position being 15 miles

long, the main position not more than 8 or 9 miles. Covered and protected by these positions, there were also near Liao Yang five or six floating bridges besides a fixed railway bridge. They therefore possessed not only a position chosen and fortified which could be used as a "pivot of manœuvre," or protected area on which a flank of the army could lean with security while the remainder delivered a blow against the enemy, but also means of crossing the river at will and with more rapidity and greater security than could the Japanese, that is to say, "the freedom of manœuvre" considered essential by our Regulations. The position, moreover, was so placed as to afford Kuropatkin every hope of "decisive success by awaiting an attack before assuming the offensive," for the Japanese, whose army could not for long have been maintained without the assistance of the railway, could not have made a wide detour with the object of avoiding Liao Yang. They would therefore either have been obliged to undertake direct and costly operations against the bridge-heads with the eventual prospect of meeting a counter-attack when exhausted by their efforts to capture them; or, should a portion of the Japanese army make a direct attack against the positions whilst the remainder passed over the Tai-tzu in some other locality, the Russians, who possessed means of more rapid passage, could mass the bulk of their army on either bank to attack one of the divided portions of the Japanese forces. Again, if the Japanese attempted to pass the whole of their army over the Tai-tzu either above or below Liao Yang, the Russians could attack in superior numbers the front or rear of the Japanese army whilst it was astride the stream.

Though in theory a defensive battle at Liao Yang possessed attractions, in practice—so great is the advantage of the initiative which is the prerogative of the attacker and enables him to impose his will on the enemy—the dreams of theory are rarely fulfilled.

Besides, even the temporary defensive possesses moral drawbacks, for it is, as a rule, a confession, however grudging, of inferiority, being "usually the consequence of inferiority of some description."

Even admitting the supposed numerical and other superiority attributed to the Japanese—their actual numbers were 125,000 fighting men and 470 guns, whilst after the arrival of the 5th Siberian Corps the Russians totalled about 160,000 fighting men and 544 guns, including flank and other detachments—the situation of their armies was the reverse of advantageous, for they were lying on the arc of a semicircle of which the Russians formed the chord, and apparently with considerable spaces between their centre and flanks. The Russians, then, were given an opportunity at least as favourable for that successful action which, as pointed out in Field Service Regulations, is gained only by a vigorous offensive, as any which could be expected from an offensive postponed until the Japanese had attained

tactical concentration. In other words, the Russians might hope to beat the Japanese in detail.

Without drawing on the southern group, Kuropatkin could mass against the First Army 80,000 to 90,000 fighting men, which would have given him a small numerical superiority over its estimated strength—65,000 to 70,000 fighting men, and an actual preponderance of about two to one.

The First Army most nearly threatened the Russian line of communication, and in case of failure to defeat it, irretrievable disaster was not probable, for the 60,000 fighting men, who would be available to contain the Second and Fourth Armies, thought to number from 100,000 to 105,000 fighting men, should, with the help of the intrenchments at Liao Yang, have been able to keep them off until the remainder of the Russians were safely across the Tai-tzu.

On the other hand, neither the organization, training, armament, nor transport of the Russian army was favourable to operations on a large scale in the mountains where Kuroki was standing, and their dispositions were such that the attack must, to a great extent, be direct rather than enveloping.

Besides, successful operations against Kuroki, though they would have cleared the Russian communications, would not have involved the ruin of all the Japanese forces, for Kuroki's army covered no point vital to the Japanese, and was estimated to include only about two-fifths of their fighting force.

After detailing about 50,000 fighting men to engage Kuroki, that is the troops actually facing him, the Russian Commander-in-Chief might move against Oku and Nodzu with between 90,000 to 100,000 fighting men, their estimated total being 100,000 to 105,000, and actual strength of nearly 80,000 fighting men.

Could the Russian General have succeeded in enveloping the left of the Second Army which was standing in the plain, in an area suitable to Russian armament and tactics, and where the railway was available for maintenance, and in driving it eastwards on to the Fourth Army, which should also have been forced in this direction, he would have gained possession of the railway, the main Japanese line of supply to Ying-kou and Dalny, and would have dealt the Japanese a blow from which they could hardly have recovered.

In the event of failure, there was certainly the risk of envelopment by the First Army, but a detachment of 50,000 men should amply have sufficed to guard against this contingency.

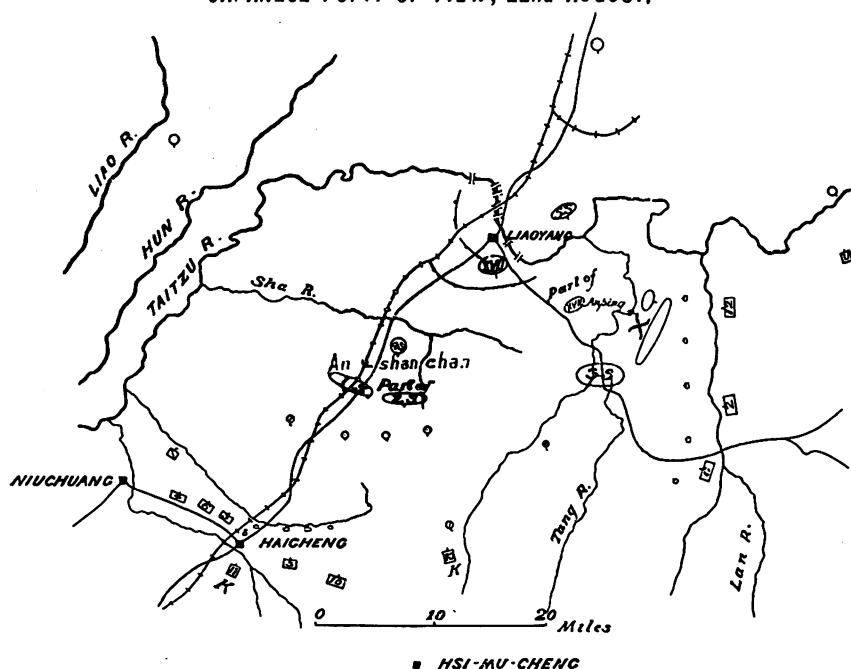
In any case, a general should have regard to the advantages rather than to the dangers of a venture, and to what may be gained rather than to what is at hazard; moreover, as stated in Field Service Regulations, "half-hearted measures never attain success in war." It may, therefore, be concluded that the Russian leader might have accepted the risks incidental to an attack against the Second and

Fourth Armies with the object of driving them away from the railroad. As has been related, he proposed to stand and fight in the positions occupied by his army.

Japanese operations.—The results of the fighting which took place towards the end of July, 1904, were to place the Second and Fourth Japanese Armies (the latter now comprising the 5th and 10th divisions and the 10th Kobi brigade) in close touch with one another and respectively in the neighbourhood of Hai-cheng and near Hsi-mu-cheng, whilst the First Army stood some 20 miles away in the valley of the Lan, with a detachment of 5,000 men under Umezawa south of Pen-hsi-hu. During August, another lull occurred in the operations of the

SKETCH 2.

JAPANESE POINT OF VIEW, 22nd AUGUST.



Japanese, who remained passive, either because of the rains which rendered movement difficult, or because General Headquarters were engaged in organizing a line of supply to Yingkou, a port lying south-west of Niu-chuang, and at the mouth of the Liao River, and were awaiting the arrival of reinforcements and drafts to make good losses. (See Sketch 2.) On the 10th August, the Russian squadron was decisively beaten outside Port Arthur, and having now gained half of their primary objective, the destruction of the Russian eastern squadron, the Japanese might, with advantage, have postponed the attainment of the other half, the capture of Port Arthur, until after the decisive land battle which appeared imminent, and might, for

the moment, have contented themselves with an investment of the fortress, transferring one or more divisions to the field forces, with the object of concentrating "superior numbers on the battlefield." Since the menace of the Russian fleet had now been finally disposed of, at least the 7th and 8th divisions might also have been sent to the front out of the garrison still maintained in Japan.

Neither plan was adopted, perhaps because sufficiently rapid transference of force was deemed impracticable, or because it was hoped first to capture Port Arthur by assault, or, possibly, because the field army was believed to be strong enough to defeat the Russians.

Towards the middle of August, when a Kobi brigade had come to hand, and drafts had been received which raised units to or above their establishments, the Japanese appear to have resolved again to advance, probably with the idea of bringing on a decisive action before the arrival of large reinforcements which were known to be on their way to join Kuropatkin. This resolution was made, it may be noted, in spite of the fact that the first assault on Port Arthur was about to take place. Oyama then had taken to heart the maxim that, as shown in Field Service Regulations, "time is an essential consideration in deciding whether the moment is favourable or not for decisive action."

A burst of heavy rain now intervened, rendering the roads impassable, and the movement was suspended.

On the 22nd August, when it must have been evident that the first assault on Port Arthur had failed—it began on the 18th and ended on the 24th—Oyama issued orders for further operations, and, in doing so, he undoubtedly adopted the best course, for to have remained inactive after and because of this reverse would have disheartened the troops, besides leaving the initiative to the enemy who could have attacked the divided portions of the Japanese field force at his leisure.

His decision, nevertheless, stamps Oyama as a daring leader, for though the Japanese possessed moral advantages incidental to a career of almost unchecked success, the Russians were believed to be numerically superior to the extent of about 20,000 fighting men, and were known to possess strongly intrenched positions barring the Japanese line of advance, especially near Liao Yang, where a number of bridges had been made across the Tai-tzu. They were, moreover, now under the personal command of Kuropatkin, whose military reputation still stood high.

The orders issued to the Japanese Armies were that the First was to gain the Tang-ho and obtain touch with the Fourth, at the same time the Second was to advance to the Sha ho, and the Fourth was to close the gap between the others.

The plan, in fact, was to bring the three Armies into contact with one another in front and within striking distance of the advanced

and main positions at Liao Yang, on to which it was apparently assumed that the Russians would retire. In other words, the Japanese proposed to adopt the procedure explained in Field Service Regulations of converging on the enemy's position.

It is for consideration whether it would not have been more advantageous, either to have endeavoured to penetrate into the interval believed to exist between the Russian groups; or first to have attacked the Russian forces at An-shan-chan, and then, when they were closely engaged, have tried to sever them from Liao Yang by an energetic offensive on the part of Kuroki's army, which would have been used as a general reserve in the manner advocated in Field Service Regulations.

The Japanese plan was actually calculated to allow the Russians to profit by the possession of their ample means of crossing the Tai-tzu, for, as has been pointed out, if the battle was fought on the Liao Yang position, the Russians would be in the advantageous situation of being able to attack the Japanese with superior numbers on either bank of the Tai-tzu, should the passage of the river be attempted.

Three reasons may be advanced for the plan followed by the Japanese: First, that the An-shan-chan position was very strong, and it was necessary to use the army of Kuroki to loosen the hold of the Russians on it; secondly, that the Japanese were anxious to bring their two groups within tactical supporting distance of one another; thirdly, that not only were they averse to weakening the force covering their main line of communication—the railway—by a movement of the Fourth Army in a north-easterly direction into the gap between the Russian groups, but they desired to prevent the Russians from massing against Oku and delivering an attack on their left.

In regard to the first argument, it may be pointed out that the advanced position on to which the Russians were to be driven was also known to be strong. As to the second, if the Japanese groups were separated, so were those of the Russians, and the balance of advantage and disadvantage was in favour of a battle on the line An-shan-chan to An-ping rather than on the Liao Yang position. Should the battle be fought at Liao Yang the Japanese would almost certainly be obliged to place their forces astride a large river, by undertaking a turning movement north of the Tai-tzu with part of their army, for they could hardly hope to capture the Russian line by direct attack alone. The third reason shows how disadvantageous is the situation when the main line of supply lies behind a flank of the army.

On the 23rd August, the Guard advanced, as the distance to be traversed was greater than that to be covered by the remainder of the First Army, and began to skirmish with the advanced troops of the 3rd Siberian Corps.

Russian movements.—News of this movement at once reached Kuropatkin, and by the evening of the 24th August he had formed the opinion that a general forward movement by the Japanese was imminent, and that the 3rd Siberian Corps was not only being attacked in front by troops from the First Army, but that a portion of Nodzu's Fourth Army was about to envelop its right.

On the 25th pressure also began to be felt by the advanced troops of the southern group, while the movement against the right of the advanced portions of the 3rd Siberian Corps became so pronounced that two Japanese divisions were believed to have been engaged.

It was therefore supposed that the Japanese were about to force their way into the interval between the two Russian groups. (*See Sketch 1.*)

As a result, instead of collecting his reserves, and waiting, as he was now bound to do, for information from the development of events, Kuropatkin at once practically abandoned all idea of an offensive, "the sole method," as stated in Field Service Regulations, "by which to attain decisive success," and followed the lead set by his opponent. He, therefore, drew one division of the XVII Corps towards the 3rd Siberian Corps, whilst the other, which was north of the river, was moved towards a bridge over the Tai-tzu existing near the mouth of the Tang ho.

At the same time, orders were sent to such portions of the 5th Siberian Corps as had arrived at Mukden or were south of the city, to be prepared to oppose any attempt on the part of the Japanese to pass the Tai-tzu, an operation which it was thought might be combined with an attack against the southern front, for there were rumours of the presence near Pen-hsi-hu of strong Japanese forces.

Japanese operations.—On the night of the 25th–26th August, the 2nd and 12th Japanese divisions attacked the X Corps, and, on the morning of the 26th, the Guard, which meanwhile had moved close to the position held by the 3rd Siberian Corps, also delivered an attack.

It had apparently been Kuroki's intention to break through with the 2nd division at the centre of the attenuated Russian line, and somewhere near the point of junction between the 3rd Siberian and X Corps. (*See Sketch 2.*) The 2nd division was, however, unable to do more than drive the Russians to a second position, while the Guard, to whose assistance the army reserve, one Guard Kobi regiment, was despatched, received a distinct check. The 12th division achieved some success, capturing a rocky peak which marked the Russian left and overlooked the North Pa-pan ling or pass.

The Second and Fourth Armies had meanwhile moved to within striking distance of An-shan-chan, driving in the enemy's advanced troops.

Russian movements.—Owing to the severity of the attacks against the eastern group practically the whole of the XVII Corps was drawn into the fight on the 26th, leaving only part of the 5th Siberian Corps in reserve. During the afternoon rain began to fall heavily, and soon reports reached Kuropatkin that the Tang, already high owing to previous rainfall, was rising at an alarming rate, and threatened to sweep away the bridges over which the eastern force must retire if the Japanese were finally successful.

The situation, then, as it appeared to Kuropatkin on the evening of the 26th August, was as follows: The southern force had held its own, but had not been seriously attacked; the 3rd Siberian Corps had, with the help of part of the XVII Corps, repulsed a vigorous attack; the right and left of the X Corps had been driven back a little, but there was every prospect that the right would be able to hold its own if only the Russians could cure themselves of their acquired habit of fighting rear-guard actions; and a large force, 17 battalions of the X and XVII Corps, had been collected to regain the ground lost on the left.

Only about one division of the 5th Siberian Corps remained, however, in hand with which to meet an attempt by Kuroki to pass the Tai-tzu, the rest of the reserves having been expended, as described above, in local reinforcement in the manner so much deprecated in the Field Service Regulations.

The disadvantage of accepting battle with one's back to a river liable to flood and not securely bridged had, moreover, become painfully evident, and the Russian commander had now to face the alternative of retirement or of continuing the battle in circumstances when the repulse of the eastern force might not only involve its annihilation, but also the ruin of the southern force as well.

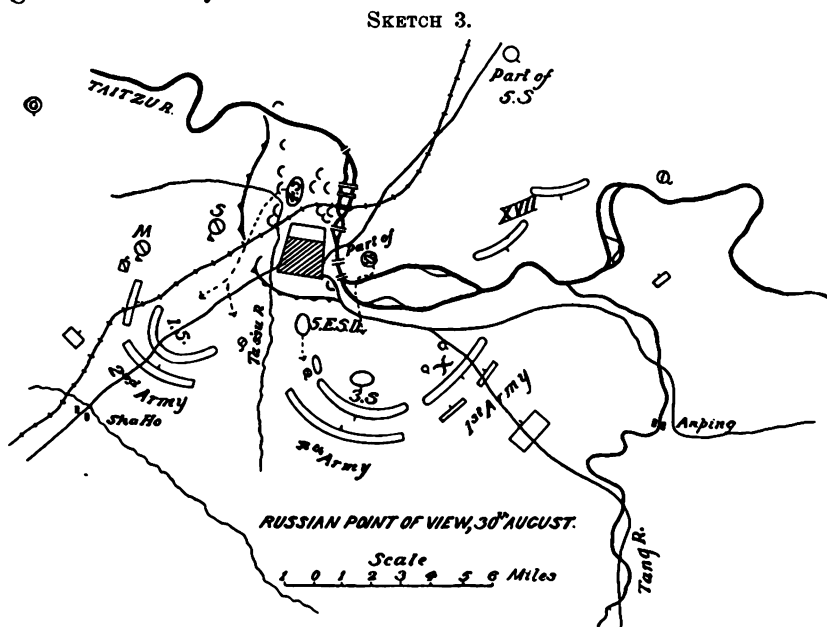
After some hesitation Kuropatkin decided during the night of the 26/27th to abandon the contest, to withdraw the eastern force across the Tang while he could yet do so, and to concentrate his army on the Liao Yang positions, where, in spite of the loss of *moral* attendant on the retirement, he hoped to be able to fight a decisive and victorious battle.

Russian retirement.—On the 27th, 28th, and 29th August, whilst the Russian Army fell back to and occupied the advanced position, 15 to 20 miles nearer Liao Yang, the fighting slackened.

Skirmishing there was in plenty, but owing to morning mists, to the exhaustion of the troops of the First Army, to heavy rain which rendered the roads almost impassable, and to the necessity for crossing two rivers in flood, the bridges over which had been broken up and removed, the Japanese did not pursue with energy, and the Russians, though not without several unpleasant half hours, were able to get clear away, and to settle down in their new positions.

Russian dispositions.—On arrival at Liao Yang, the Russians were

disposed in two lines (*see Sketch 3*), in front, in the advanced position, being from right to left, the 1st Siberian and 3rd Siberian Corps, and the X Corps, while the XVII Corps on the heights north of the Tai-tzu protected the left flank. The right flank was watched by Mischenko with 21 squadrons and by a detachment, 3,000 strong, under Grekov. The general reserve, in five groups, round Liao Yang, comprised the 4th Siberian Corps, part of the 2nd Siberian Corps which included the 5th East Siberian Division, the 5th Siberian Corps, and Samsonov's Cavalry, 19 squadrons. In addition, 26 battalions, 67 squadrons, and 52 guns, were or had been detached into the Liao Valley, to Pen-hsi-hu, and to the line of communication, to watch the flanks and guard the railway.



The position taken up by the Russians south of the Tai-tzu extended for about 15 miles, and whilst undoubtedly strong by nature, had been strongly entrenched; the left flank may be said to have rested on the Tai-tzu, a wide river possessing but few fords, the right of the infantry was on a railway embankment, and between this and the Tai-tzu there stretched an unbroken expanse of kao liang or giant millet, which grows to a height of ten feet. This area, if passable by infantry, was impracticable except by the field tracks for guns and cavalry, and was guarded by a strong force of cavalry and by a detachment of the three arms.

The position covered the Russian line of communication, the railway, which could be reached by the Japanese only at the risk of placing their army astride the Tai-tzu, and by a turning movement round one or other of the Russian flanks.

The works were certainly of such a nature as to fulfil the requirement of Field Service Regulations, that "the power spent on defence should be economized in order that the power of offence may be increased;" nor was the frontage so great as to preclude "at least half the available troops being held in hand with the ultimate purpose of assuming the offensive."

The protection afforded to the flanks by the Tai-tzu seriously limited the enemy's power of manœuvre, and the Japanese could only attempt to manœuvre at considerable risk of defeat in detail.

As has been pointed out, the freedom of manœuvre insisted upon in our Regulations was assured by the presence of the bridges over the Tai-tzu. In addition, there was ample space for movement within the area south of the river covered by the advanced position, while the movements of troops would largely have been screened by the kao liang, with which the whole plain was overspread.

The X and 3rd Siberian Corps occupied a series of steep-sided hills and knolls, in front of which lay a valley perhaps 2,000 yards wide from hill to hill. The 1st Siberian Corps held a promontory of high land which extended into the plain, ending near the railway in the dome-shaped mass of Shou-shan-pu. Between the 1st and 3rd Siberian Corps lay the marshy level traversed by the Ta-ssu Brook, and this for some reason, possibly because it could be swept by cross fire, was not strongly occupied. In front of the Shou-shan-pu position the kao liang, which covered the whole of the approaches, had been rolled flat for about 1,000 yards, thus forming a glaciais difficult of passage.

Out of 210 battalions, 157 squadrons—about 160,000 fighting men—and 644 guns now available (in addition, 8 battalions and 26 guns belonging to the 1st European Corps came up during the battle), 90 battalions, 64 squadrons, and 400 guns—that is, about 65,000 fighting men—were in first line.

The reserves, which totalled only 53½ battalions, 30 squadrons, and 110 guns, or 40,000 fighting men, were not only somewhat scattered, some 12 battalions besides artillery being north of the Tai-tzu, but were far below the proportion demanded in Field Service Regulations. One whole Corps, the 4th Siberian, was, however, behind the right flank, thus in part fulfilling the requirement of our Regulations that the general reserve should be where the best line of advance exists for a counter-attack; for it was in the space between the right of the first line and the Tai-tzu that counter-attack south of the river could be delivered, with the best prospect of attaining decisive success. Here, behind the Japanese left, lay the railway, their main line of communication, which could more easily be reached by the Russians than could the Russian line of communication by the Japanese.

The XVII Corps, about 25,000 fighting men, occupying a couple of considerable hills on the north bank of the Tai-tzu, was so placed as to be in position to oppose the Japanese in the locality where, owing to the presence of fords, the passage, if attempted, would probably be undertaken.

The Army then was deployed rather than concentrated round Liao Yang, and in such a manner as to be ready not only to meet the two moves most likely to be made by the Japanese, namely, direct attack by one portion combined with an enveloping movement north of the Tai-tzu and east of Liao Yang by the remainder of the Army, but also to parry every other alternative operation, instead of so disposed as to be ready to deliver an effective counter-attack.

The dispositions of the Russians disclose, in fact, that half-heartedness which the Field Service Regulations tell us "can never attain success in war."

It may, therefore, be assumed that Kuropatkin's intention was now to check rather than defeat his opponent, and indeed in his orders no mention is made of attack—the troops are directed to take up or defend positions. It was probably his design to attack only if and when some exceptionally favourable opportunity presented itself, such as the general exhaustion of the enemy due to his having expended "his reserves in endeavouring to storm the position;" but he did not "intend to create an opportunity for decisive offensive action."

Even so, the allotment to the XVII Corps, to the detachment under Grekov, and to the garrison of Liao Yang, in all some 30,000 men, and to the other troops detached for the protection of flanks and of the line of communication, 25,000 in number, of the rôle of spectators, requires a great deal of explanation, and can only be considered as grievous neglect of the principle of concentration of effort, which consists in "economizing the power expended in defence in order that the power of offence may be increased."

Of what use were these far-flung detachments for the protection of the flanks and communications? To give warning of wide turning movements by large Japanese forces? If the Japanese chose to send troops 30 or 40 miles away to make turning movements, their march could equally well have been notified by a few Cossacks, and their absence from the field of battle would have made a Russian victory certain had Kuropatkin concentrated his forces. The detachments, in any case, were not sufficiently strong in any given locality to impede effectively a hostile movement on a large scale.

Again, would not Kuropatkin's position in reality have been stronger had much smaller forces been detailed to undertake the duties allotted to the XVII Corps and to Grekov's detachment, while the remainder were, as advocated in Field Service Regulations, either added to the general reserve and so rendered available for "the

ultimate assumption of the offensive," or employed in part to fill up the gap between the 1st and 3rd Siberian Corps?

The dispositions made by the Russian General tend, in fact, to show that he was afraid of his opponent, who had already established the ascendancy which is the forerunner of victory.

In this connection it may be noted that even on the 29th, owing to reports that the Japanese were preparing to cross the Tai-tzu at Pen-hsi-hu, and that they were in force in this neighbourhood, Kuropatkin made arrangements for withdrawal to the north bank of the river, causing orders known as Disposition 3 for the Manchurian army to be prepared in anticipation of this eventuality. In addition, the Russians had for some days been engaged in evacuating the dépôts which had been formed at Liao Yang, and the despatch northwards of stores and material was busily continued throughout the 30th.

The attitude of the Russian Commander was reflected in that of his subordinates, for on the night of the 29th August, before the Japanese closed on the Russian position, Stackelberg, commanding the 1st Siberian Corps, demanded a reinforcement of a division or at least of a brigade.

Russian operations.—On the 30th August, in spite of heavy and continuous rain which rendered the tracks in the plain almost impracticable, the Japanese attacked the position. So vigorous were their operations against the 3rd and 1st Siberian Corps (*Sketch 3*), the right of which they tried to envelop, that Kuropatkin, who seems to have moved forward to a position whence he could watch this action, felt obliged to expend 22 battalions and 56 guns of the units in reserve standing south of the Tai-tzu, to reinforce his hard-pressed troops and enable them to beat back the attackers; in other words, he conformed once more to the operations of the enemy, making little or no attempt by means of attacks to force him, as advocated in our Regulations, to use up his reserves. The attack on the X Corps was not so energetically carried out and was more easily defeated.

On the evening of the 30th August, Kuropatkin, then, could only be fairly well satisfied with the progress of the battle, for, of the reserves south of the Tai-tzu but 19 scattered battalions remained, though the troops north of the river were still intact.

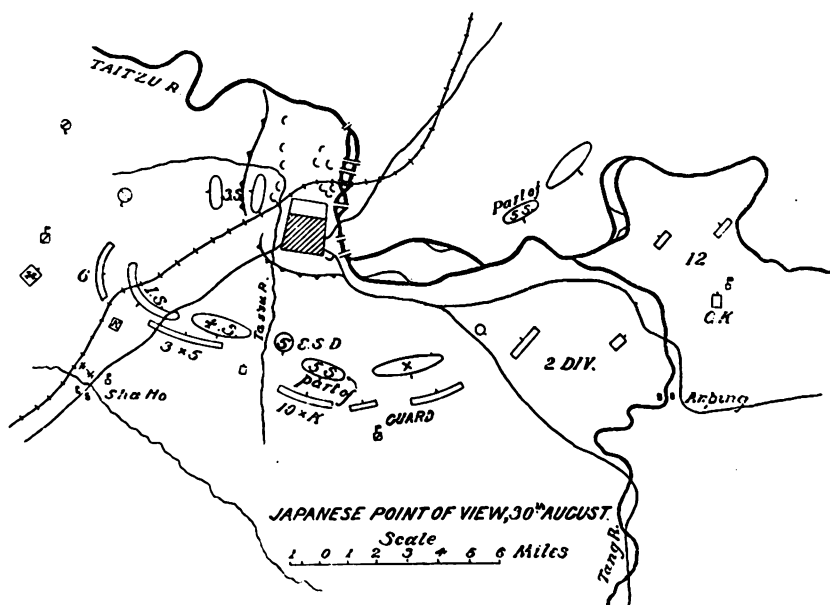
His experience proves how difficult it is to refuse importunate demands for reinforcements from subordinates, to remain a free agent, to prevent oneself from conforming to the movements of the attacker, and to retain in hand a sufficient force to strike an effective blow when the enemy is exhausted.

Kuropatkin was, however, not at all sure in spite of their repulse that the Japanese were near the end of their resources, for the comparatively feeble effort against the X Corps had caused him rightly to suppose that the main body of Kuroki's Army had not been engaged.

Japanese operations.—Keeping to the general lines of their plan of action the Japanese had followed up the Russians in their withdrawal to Liao Yang, but though the distance to be traversed was not more than 15–20 miles, it was not until the 30th that the Japanese were again able to close with the enemy, when they advanced in heavy rain to attack his formidable positions.

Oyama possessed, it appears, reasonably accurate information as to the dispositions of the Russians (*see Sketch 4*), and was therefore able to allot definite tasks to the three Armies, specifying, as advocated in Field Service Regulations, the actual limits of frontage to be attacked.

SKETCH 4.



Against the Shou-shan-pu heights, occupied by the 1st Siberian Corps, was directed the Second Army, less the 4th division retained at the disposal of the Commander-in-Chief. The Fourth Army, with which the Second was to co-operate, moved against the Russian centre, the Guard division against the X Corps, while the 12th and 2nd divisions, the Guard Kobi regiment, and Umezawa's detachment near Pen-hsi-hu, about 5,000 strong, were to be prepared to cross the Tai-tzu when required. An ample force, then, was detailed to "pin the enemy to his ground and to wear down his power of resistance."

The troops forming the general reserve, if one may so designate the 4th, 12th, and 2nd divisions and Umezawa's detachment, were placed not centrally,—where, owing to the extent of frontage taken up, about 20 miles, and to the absence of well-developed lateral communication, the troops would have been of little use,—but where

their services were most likely to be required ; the 4th division to parry a blow against the Japanese main line of communication, the railway, which, as has been pointed out, was somewhat exposed, the others to deliver an enveloping attack against the enemy's troops north of the Tai-tzu, thus threatening his line of retreat, or, as the Field Service Regulations phrase it, "to extend the front until the enemy's line is overlapped."

It is a maxim that the offensive is often the best defensive, and in Field Service Regulations it is laid down that "the force allotted to the decisive attack must be as strong as possible." It may therefore reasonably be asked whether the Japanese would not have been better advised to have massed three divisions for an attack against the Russian communications, rather than weaken the force and value of their blow by keeping a division in hand to meet an attack which might never take place. The Japanese line of communication was, however, more exposed than was that of the Russians, and it was therefore quite possible that the Russians would reply to a threat to their communications by an advance against those of the Japanese. In this eventuality time and space would be in favour of the Russians, unless the Japanese had in hand sufficient troops to hold the enemy in check until the movement against the Russian communications became effective.

It may therefore be concluded that concentration of three divisions on their right would only have been justified if the Japanese had good reason to suppose that the Russian Commander would conform to any operations against his line of supply, and was unlikely to assume the initiative in anticipation of and with the object of preventing such tactics.

If the attacks made by the Japanese on the 30th August were delivered with the intention of "pinning the enemy to his ground and of wearing out his power of resistance," they, in part, achieved their purpose. Nevertheless, the Japanese were worsted all along the line, the Guards were definitely repulsed, as was the Fourth Army, and the right of the Second, whilst an enveloping movement by the left of the Second Army did not, owing to delay caused by the heavy going in the plain, materialize until the right had been beaten. This attack also was unsuccessful, and in this incident is found emphatic confirmation of the paragraph in our Regulations which lays down that "most careful arrangements must be made to ensure that attacks intended to be simultaneous should be so in reality."

The 4th division was not engaged, being kept in hand to repel a counter-attack which it was expected that the Russians would make against the Japanese left.

Meanwhile, a momentous decision had been made by Kuroki.

At about noon the Guard, who could overlook Liao Yang and the railway from a point of vantage 12 miles from the city, reported

that frequent trains were moving north, and that four large fires had broken out in Liao Yang.

Accustomed to see the Russians fall back even when the attacks of the Japanese had been repulsed, Kuroki thereupon jumped to the conclusion that these occurrences were the prelude to a general retreat. With the object of trying to cut off as many of the Russians as possible, he therefore issued orders at 1 p.m. for the 12th and 2nd divisions to cross the Tai-tzu that night, and for Umezawa to do so on the 31st August, the Guard remaining to co-operate with the Fourth Army. Owing to the successes of the Russians, these orders were subsequently modified to the extent that the 3rd brigade of the 2nd division remained with the Guard.

In default of reliable evidence to the contrary it must be assumed that Kuroki's action was notified to General Headquarters, and as the orders were not reversed Oyama must bear the blame or take the credit for the movement.

The question arises, then, was Oyama justified in his action?

If it was really believed, in spite of other evidence to the contrary, that the Russians were about to retire, Oyama certainly adopted the best course to render his victory decisive.

In any event, information or no information, it is submitted that of all the alternatives open to the Japanese the despatch of the 2nd and 12th divisions across the river *would*, in the circumstances, have been the wisest plan.

The circumstances were as follows: The Japanese had been beaten all along the line, a counter-attack by the enemy was expected against the left of the Second Army, and the only troops in hand to meet it were the 4th division near the railway, and the 12th and 2nd divisions 15 to 20 miles to the east.

To have fallen back with the object of manœuvring for a more favourable opportunity to attack—as did Soult after Sauroren, Lee after Gettysburg, Jackson after Kernstown, and Buller after Colenso—would have involved serious disadvantages, while the prospects of substantial gain were most problematical. In the first place, the Armies could not again have separated, but must have withdrawn in a southerly direction, when the burden of supplying all three would have fallen on the railway line which ran behind the left flank. The First Army, then, after abandoning its own line of communication, would have experienced much difficulty in drawing supplies and munitions from the line of rail, and since the three Armies would to a large extent have been tied to the railway—their principal line of supply—manœuvre to say the least would not have been easy. Moreover, retreat after a repulse, and following the defeat at Port Arthur, would have disheartened, perhaps demoralized, the Japanese, and would have encouraged the Russians, and in such circumstances it is far from easy for an army which once commences a retrograde

movement to call a halt. Again, retirement would possibly have entailed the most grave monetary and political consequences, for Japanese credit must have been damaged thereby, and, if so, loans might have been difficult to arrange.

Had the Japanese broken off the attack and entrenched, as they did subsequently at the Sha Ho Battle—following the precedent set by Napoleon after Aspern, and imitated by the British after Chillianwallah and Magersfontein—the situation would have been almost as unfavourable, for their action would have been an acknowledgment of the fact that in the first real trial of strength they had been unsuccessful. Even supposing that the Japanese repulsed the Russian counter-attack, which was anticipated, it was more probable that the battle would end in a deadlock than in a victory for the Japanese whose spirit would have been damped by their want of success, and in such circumstances eventual success could be gained only by bringing up large reinforcements. These could certainly have been obtained by sending for the 7th and 8th divisions still in Japan, and for any cavalry and Kobi available, and by suspending the siege of Port Arthur and transferring two divisions from the besieging force to the field army. Even so, the numerical situation when the battle was renewed would, so far as the Japanese were aware, be no more favourable to them, for it was known that the Russians also expected large reinforcements, while the situation, so far as *moral* was concerned, could never again be so advantageous. The future, in these circumstances, could therefore only be regarded with concern.

On the other hand, the best, if not the only method of preventing an assumption of the offensive by the enemy, was to continue to attack, as did Napoleon at Laon, and the Germans at Rezonville, in somewhat similar circumstances, with the object of forcing the enemy to parry, without giving him time to deliver blows.

But the Japanese wished to do more than prevent a counter-attack, they desired to win the battle, and by far the surest way of doing so was, as did Napoleon at Wagram and Lord Roberts at the Peiwar Kotal, to continue to press the enemy, to strike at his vitals, to beat down his guard.

If this is admitted, the problem to be solved was where the attack should be delivered.

Was success likely to be attained, and was the hazard greatest in a further attack on the position from which the Japanese had been repulsed, or in a bold movement against the enemy's communications, his vital point, where "success would mean ultimate success at all points?"

It is thought that, in the circumstances, the second, that is the steadfast prosecution of what apparently had been the original plan of action, was incomparably the better alternative. If successful, the Japanese stood to gain far more, though if defeated, the loss would have been greater.

It is believed then that this was a moment not for caution and self-restraint, not for retreat or for entrenchment, but for reasoned daring.

Unless made solely because of the report that the enemy was about to retreat, Oyama's operation was certainly daring, for had it failed, the battle was lost, and with it the prestige of the Japanese. In addition, Kuroki's one-and-a-half divisions would probably have been annihilated, which would have crippled the Japanese for the remainder of the war.

The advantages to be gained were, however, far greater than under either of the other alternatives, which, as has been pointed out, possessed but few attractions, and it is to the advantages rather than to the risks that a general should have regard.

If this fact was influential in affecting Oyama's plans he is shown in the light of a great commander, for at this juncture he could hardly have calculated, at any rate with reasonable certainty, on the want of enterprise displayed by his opponent, and on the inactivity of the Russians.

Russian operations.—As all was quiet along the front, except at Shou-shan-pu which was still subjected to attacks, Kuropatkin spent the night of the 30th-31st August in trying to regain control of his reserves, for he momentarily anticipated the news that the bulk of the First Army had crossed the Tai-tzu and was marching on his communications. The difficulty experienced by a commander in controlling the wills of his subordinates has rarely been better illustrated than by the unwillingness with which the Corps commanders parted with the troops lent to them. Stackelberg, commanding the 1st Siberian Corps, at first sent a flat refusal, but was eventually induced to return a portion of the reserve, and Ivanov, of the 3rd Siberian Corps, retained eight battalions. However, by the morning of the 31st August, the general reserve had to a large extent been re-established, while the Corps commanders had re-formed strong local reserves. The whole army then again waited on the movements of the enemy.

The 3rd Siberian and X Corps had comparatively an easy day, for neither Guard nor Fourth Army pressed them. At 10 a.m. in fact, when an assault was being delivered against the Russian right, General Vassiliev, commanding the 31st division forming the left of the X Corps, reported that a gap had appeared on the Japanese right and proposed a counter-attack.

It is stated in Field Service Regulations that "to judge the right time for changing from the defensive to the offensive is as difficult as it is important," but we are also told that "the defensive is assumed only in order to await or create a favourable opportunity for decisive offensive action." Such opportunity is unlikely to occur if the enemy is left free to develop his plans, for then the defender will probably be forced "to subordinate his movements to those of the enemy."

From the course of the action on the 31st August it must have been evident to Kuropatkin that something more or less than an attack on his position was in progress.

The operations of the Japanese might have been prompted by three motives. They might desire to tempt Kuropatkin from his position, but this was unlikely in view of the strong attack on Shou-shan-pu. The troops opposed to the 3rd Siberian and X Corps might be too exhausted to renew the offensive, and the attacks on Shou-shan-pu might be undertaken only with the object of gaining time for the remainder to recover. Lastly, the efforts against Shou-shan-pu might be to distract attention from a turning movement on which part of the enemy's army had been launched. In either of the last-mentioned circumstances this would have been a juncture favourable for the assumption of the offensive by the Russians who, if the Japanese were exhausted, would be prosecuting the success of the 30th August, or, if a turning movement was in progress, would seriously disturb the plans of the enemy, and as Field Service Regulations demand, "limit their power of manœuvre."

The moment then seemed propitious for attack, and had Vassiliev's proposal been accepted, the course of the battle might have been changed, for the 12th and half the 2nd divisions would probably have been recalled to help the Guard.

Kuropatkin, however, was not to be induced to take the initiative. His reply was to order General Vassiliev to send to the general reserve any troops that could be spared.

Soon afterwards news came from the right that the Japanese had been repulsed, and Kuropatkin, concluding that his left would now be attacked, proceeded to conform to the possible movements of his enemy by sending 8 or 10 battalions across or towards the Tai-tzu.

At 11.30 a.m. the Japanese again commenced to attack the 1st Siberian Corps, and at the same time came reports that at 6 a.m. a long column of troops had been observed fording the Tai-tzu at Lien-tao-wan.

The Russians made little attempt then or later to hinder the operations of the enemy, who were allowed to bridge and raft unmolested by the XVII Corps, which contented itself with reporting to General Headquarters.

Kuropatkin also heard during the day that the Japanese had crossed the Tai-tzu at Pen-hsi-hu.

The long-expected attack against his line of communication had therefore at last begun. (*See Sketch 5.*)

According to the report on the battle made to the Tsar, the news from the north bank of the Tai-tzu, combined with the fact that the positions of the X Corps had for two days not been subjected to such serious attacks as those of the 1st and 3rd Siberian Corps, caused

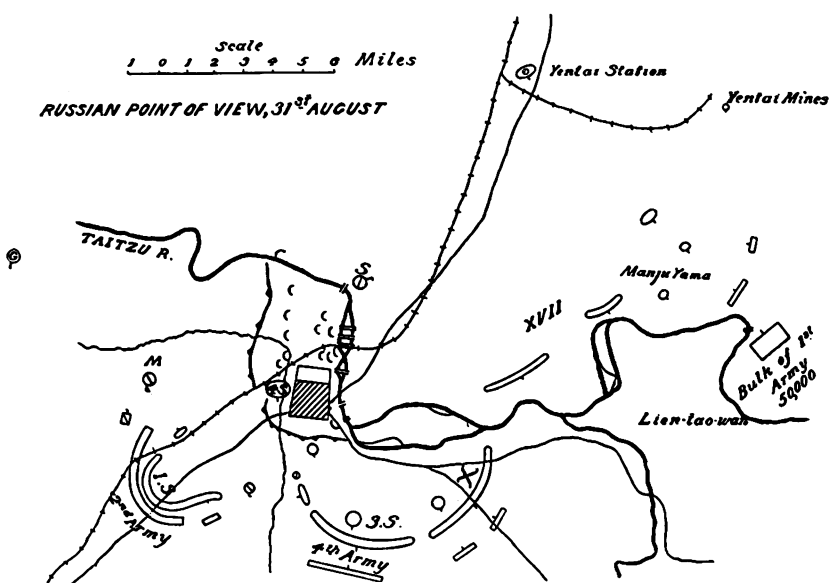
Kuropatkin to infer that the main body of Kuroki's army, originally estimated at 65,000 to 70,000 fighting men, was moving against his line of communication.

The question must therefore have presented itself, how was the movement of the Japanese to be met: by a counter-attack in a southerly direction, or by direct attack on Kuroki?

Time and space were certainly in favour of an attack in a southerly direction, for even now the Japanese line of communication, the railway, could more easily be reached by the Russians, than could the Russian line by the Japanese.

So far as numbers were concerned it may reasonably be assumed that, at this moment, the Russian general reserve, including the advanced

SKETCH 5.



portions of the 1st European Corps (8 battalions and 26 guns), now at hand, could not have totalled less than about 40,000 to 45,000 fighting men, of whom some 20,000 to 25,000 were south of the Tai-tzu, and, in addition, Mischenko's 21 squadrons and Grekov's detachment of about 3,000 fighting men were available.

After detailing 15,000 men of the 5th Siberian and 1st European Corps, and Samsonov's Cavalry of 19 squadrons, to assist the XVII Corps (25,000 fighting men) to contain Kuroki, there would have remained between 20,000 to 30,000 fresh or fairly fresh troops for a counter-attack on the Japanese left.

So far as Kuropatkin was aware, the Japanese forces south of the Tai-tzu consisted of the Second and Fourth Armies and possibly part of the First Army, that is, as he supposed, about 90,000 to 95,000

fighting men, allowing for losses. These troops had, however, been repulsed from the Russian position, and their fighting value consequently lowered, whereas that of the Russians holding the advanced position, probably 50,000 fighting men, had been raised.

The Russian Commander could then oppose about 80,000 fighting men, of whom 20,000 to 30,000 were fairly fresh, to, as he supposed, 90,000 to 95,000—the actual numbers must have been about 75,000—who were most probably to a great extent exhausted. Moreover, since the enemy lay astride a large river, and had, in fact, in the words of Field Service Regulations, exposed “a portion of his force without hope of support from the remainder,” and since his communications were the more vulnerable, all the moral advantages if an attack in a southerly direction were undertaken would have been on the side of the Russians.

It is known that Kuropatkin believed that, in quality, the Japanese troops were considerably superior to the Russians, and it is possible that this notion, combined with his exaggerated opinion of the numbers of the enemy, was influential in causing him to refuse the alternative of a counter-attack against the Second and Fourth Armies. In his book mention is also made that the idea of an attack against Oku and Nodzu was rejected because he was afraid that these Generals might fall back and draw him southwards, when Kuroki, who would be opposed only by the unseasoned troops of the XVII Corps and by a few detachments, would be able to sever his line of communication. The despatch dealing with the events of the battle, however, contains these words: “My general reserve was no longer strong enough to ensure the success of a counter-stroke in a southerly direction. A withdrawal to the main position shortened the length of the line to be defended, making it possible to concentrate a considerable portion of the army north of the Tai-tzu. There was, undoubtedly, a danger of Kuroki cutting our communications, and the most pressing duty of the army seemed to be to guard them.”

Kuropatkin, then, regarded the dangers rather than the advantages of the operation, and his own difficulties rather than those of the Japanese. Again he conformed to the movements of the enemy, and allowed his will to be dominated and overruled.

That many men would have done the same in the circumstances is probable, and there is much to be said for the decision taken by Kuropatkin. The Russian Commander proposed to adopt the safer course—to risk less, for, once north of the river, the main body of his army stood in little danger of ruin; the possible gain would, however, also have been less, because at best he would defeat only a detachment and not the main force of the Japanese. On the other hand, success, such as it would be, was more probable, for perhaps 90,000–100,000 fighting men could have been massed against the 50,000–60,000, allowing for losses and detachments, credited to Kuroki.

In view of the example set by Napoleon at Austerlitz, and by Wellington at Salamanca, and since Kuropatkin's main reason for deciding to attack Kuroki seems to have been that his reserve was no longer strong enough to *ensure* the success of a counter-stroke against Oku, it may, however, be claimed that he was wrong, and that the bolder would also have been the wiser course, viz., to counter the blow at his own communications by an attack against those of the Japanese.

What would have been the result had Kuropatkin attacked the left of the Second Army it is not possible to say, but history teaches that the leader whose communications are in the greatest danger, as a rule conforms to the operations of his opponent, and it is certain that on the 31st August the attitude of Japanese Headquarters was not expressive of unbounded confidence.

The Russian commander-in-chief then decided to fall back, and at about noon the instruction, known as Disposition 3 for the Manchurian army, was issued to some if not all Corps commanders, in which they were informed that preparations might be made for retreat but that no movement was to be undertaken until nightfall.

A second assault on Shou-shan-pu by the Second Army ended at 4 p.m., which, except for a small lodgment in one trench, was unsuccessful, and between 6 p.m. and 7 p.m. orders were circulated for withdrawal from the advanced position, Samsonov being sent off at once to protect the left of the XVII Corps.

Japanese operations.—At about midnight on the 30th-31st August, the 12th Japanese division began to cross the Tai-tzu by the ford at Lien-tao-wan; a pontoon bridge was subsequently made a mile or two lower down the river at a bend, and later another was thrown at the same place.

But little resistance was encountered, and by 3 p.m. on the 31st August, the 12th division and the 15th brigade were standing east of Manju yama, while patrols were busily moving through the kao liang to reconnoitre the Russian positions. (*See Sketch 6.* Manju yama is a little knoll situated on a long spur flung eastwards by a much larger hill, and is easily seen above and from the millet.

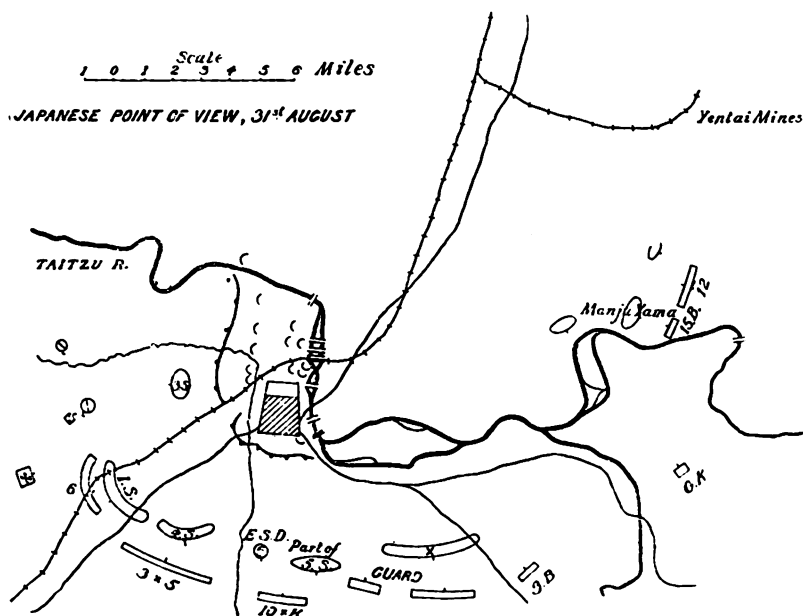
Nothing further except an artillery duel occurred during the remainder of the day in the area north of the Tai-tzu, whereas, once committed to this course, the best chance of success lay in the energy with which the operations were prosecuted, for every moment of delay allowed time to the Russians in which to meet the movement of the Japanese. As is pointed out in Field Service Regulations, "half-hearted measures never attain success in war."

On the southern bank of the Tai-tzu neither Guard nor main body of the Fourth Army did more than cannonade the Russians, whereas their obvious duty was "to pin the enemy to his ground, to apply the greatest possible pressure to his whole front, to co-operate,"

in fact, "in completing his overthrow." It is said that this apathy was due to a misunderstanding in regard to the operation orders, the Guard being under the impression that it was to conform to the Fourth Army, the latter that it was to wait for the Guard. It may however be suspected that slackness, so foreign to the Japanese custom, was caused by the condition of the troops.

Two assaults, supported by the fire of nearly 300 guns, were delivered by the 3rd, 5th, and 6th divisions against the position held by the 1st Siberian Corps, both being repulsed, though in the second, which ended at about 4 p.m., one of the lower trenches on the east of the position was captured. Out in the plain to the north of Shou-shan-pu quite an insignificant forward movement on the

SKETCH 6.



part of the Russian cavalry caused Oyama so much anxiety lest it should be the prelude of the counter-attack which was anticipated, that the 4th division was again kept out of the fight.

In spite of two repulses, Japanese General Headquarters, perhaps with the object of forcing the Russians to expend in reinforcements any troops which might still be available for a counter-attack, perhaps also to prevent concentration of effort against Kuroki, called late in the day on the Second Army for yet another effort, and placed the 4th division at the disposal of General Oku. The attack, made after nightfall, was crowned with success, and at 3 a.m. next morning the Japanese stood on the position which for four or five hours had, however, only been held by a rear-guard.

The news of this achievement spread quickly, and it was soon ascertained that the enemy had abandoned his advanced position.

Before he could decide on his next movement, Oyama required information as to whether the Russians were still on the south bank of the Tai-tzu. This, apparently, was not obtained until after day-break on the 1st September, for early in the morning Kuroki was warned not to commit himself until the situation was more clear.

Subsequently, it was found that the enemy were still in occupation of Liao Yang.

It is now for consideration what action should have been taken by the Japanese General Headquarters in these circumstances.

As yet the Japanese had no definite news regarding the movements of the main body of the enemy's army which might either be in full retreat, according to what had almost come to be regarded as the usual Russian custom; or a concentration against Kuroki might be in progress; or, again, the retirement might have been made merely to narrow the front occupied in order to render more troops available for a counter-attack in a southerly direction.

To await for definite information as to the enemy's movements is, as a rule, to abandon the initiative to him, for exact news rarely comes to hand until the propitious moment for action has passed. When confronted with a problem of this nature, a commander should therefore be guided by the probabilities of the situation, giving his enemy credit for doing what is most reasonable.

Applying this principle to the three motives which might have prompted the Russians to withdraw from the advanced position, it may be concluded that the third alternative—retirement to concentrate for a counter-attack in a southerly direction—was the one least likely to be uppermost in the mind of Kuropatkin, for his inactivity on the 30th and 31st had rendered such action improbable. Moreover, space to manoeuvre and deploy a large force in and from the main position was lacking. The probabilities, then, were in favour of retreat, or concentration against Kuroki, the troops observed to be south of the Tai-tzu being merely a detachment to gain time for the remainder to pass over the river, and for the destruction of the bridges, or a force left as a menace to the communications of the Japanese with the object of preventing them from concentrating on the north of the Tai-tzu.

If the Russians were massing against Kuroki the aim of the Japanese should have been to have deployed north of the river as large a force as possible, for their presence here would be more effective, whether to give assistance to Kuroki or to increase the force of the blow against the enemy's vital point, than would an attack against the main position which was known to be strongly fortified. If the enemy was in retreat the same argument holds good, unless there were strong grounds for supposing that he was so far demoralized

that he would both be incapable of serious resistance, even behind parapets, and would neglect to destroy the bridges over the river.

It does not appear that the Japanese had any reason to believe that the Russians were demoralized, and it is suggested, therefore, following the principle set forth in our Regulations, "that the force allotted to the decisive attack should be as strong as possible," that every available man should have been sent north of the Tai-tzu to Kuroki, sufficient being directed against Liao Yang to ensure that a considerable number of the enemy would be contained in its neighbourhood.

Of course, such action would have weakened the force directly covering the main line of communication of the Japanese, but this would best have been secured by adding to the strength of the menace to the Russian lines of communication, for then the enemy would be concerned rather to guard them than to make attacks on the communications of the Japanese. A thrust in the right direction is usually the most effective of all guards.

Exactly how many troops could have been moved north of the river in time to render useful assistance to Kuroki is a question of time and space, but it is suggested that at least the residue of the First Army, that is, the Guard, the 3rd brigade, and the Guard Kobi, besides the 10th division and the 10th Kobi Brigade from the Fourth Army, might with advantage have been sent in this direction, leaving the remainder—four divisions, a cavalry brigade, and some Kobi—to advance against the Liao Yang position. Actually, only the 3rd brigade of the 2nd division, and the Guard Kobi Regiment, went to the direct assistance of the troops engaged in the struggle north of the Tai-tzu.

In spite of Oyama's warning, Kuroki, who seems to have been quite satisfied in his own mind that the Russians were in full retreat, determined to advance as soon as possible.

As a result practically the whole of the First Army was definitely committed, the 15th brigade of the 2nd division being moved during the morning of the 1st September against Manju yama, while the 12th division advanced to the north of it. At the same time the Guards were directed to proceed to the Tai-tzu to a point five or six miles South-west of Manju yama, and were apparently intended to cross the river when the passage had been opened by the advance of the 2nd and 12th divisions.

Kuroki's troops were soon brought to a standstill. The 12th division was obliged to suspend its movement owing to the presence of hostile troops on its right, and the 15th brigade could do no more than close on Manju yama, while the Guards were confronted by a large force of the enemy occupying entrenched positions on the north bank of the river.

Kuroki, then, found himself in a disadvantageous situation, for the bulk of his army was not favourably placed to meet a counter-attack should it be made, and north of the river he had no reserves. At about 1 p.m., therefore, he summoned the 3rd brigade and the Guard Kobi across the river, and at the same time ordered Umezawa's detachment to advance from Pen-hsi-hu towards the Yen-tai mines to prolong the right of the 12th division.

Meanwhile, the Second and Fourth Armies had done nothing more than bombard and reconnoitre the main position while the various divisions reorganized and advanced within striking distance, though this relaxation of pressure must have been advantageous to the Russians, who were left free to complete their arrangement.

By nightfall, Oyama seems to have believed that the main body of the Russians was north of the Tai-tzu, while part of their army was holding the defensive works round Liao Yang. No change was, however, made in the arrangements; perhaps it was thought to be too late to do so, or, possibly, that the Japanese would with ease overcome the enemy's resistance south of the river, and would find no difficulty in crossing it.

Russian operations.—The Russians had spent the night of the 31st August in making fresh dispositions, 79½ battalions, 13 squadrons, and 84 guns, that is about 55,000 men, being allotted to the defence of the main position from the least tried troops, viz., the 3rd and 4th Siberian Corps, the 5th East Siberian Division, and the X Corps. This force did not finally settle down until 2 p.m. on the 1st September.

The 1st Siberian Corps, and the bulk of the X Corps, meanwhile moved deliberately north-eastwards, the plan of the Russian commander-in-chief being to pivot on the XVII Corps, and deliver from the direction of the Yentai mines an enveloping attack on Kuroki, in which some 70,000 fighting men out of about 80,000 available would take part. This attack was, however, not timed to take place until 3rd September. In the interval, the XVII Corps was to hold Kuroki fast, assisted by the cavalry of Mischenko and Samsonov, by two detachments of the 5th Siberian Corps—one 10,000 strong, but composed mainly of reservists, being under Orlov—and by some other units, including a hastily organized brigade of troops from the 5th Siberian and 1st European Corps.

The deliberation which characterized the movements of the Russians is not easy to understand, for surely, if ever, this was a case for promptitude, and "half-hearted measures never attain success in war." The longer the Russian counter-stroke was postponed the more troops would the Japanese have in hand to meet it, and the greater would be the chance that the Russians would be forced to use their men piecemeal in maintaining their positions rather than for the projected attack. Since, then, time was an important factor for the Russians, it would perhaps have been wiser to have moved the

bulk of the troops by the shortest route against the enemy with the object of driving him eastwards, not forcing him against the Tai-tzu.

It is also for consideration whether the least tried troops should have been left in the main position in preference to using them for the decisive attack. It was, however, doubtless easier to deploy the reserves in the Liao Yang lines, and they would be ready to check any attempt on the part of the Japanese to hustle the retreating Corps.

Again, it may be asked whether any troops at all should have been left on the south bank of the Tai-tzu, and whether, in accordance with the principle that "the force allotted to the decisive attack should be as strong as possible," it would not have been more advantageous to have concentrated to the north of it the whole army, and, after detailing a few units to guard the fords, to have marched the rest to overwhelm Kuroki.

By their successful withdrawal from the advanced position, the Russians had gained the initiative, and the problem to be solved was whether, if the whole army crossed to the north of the Tai-tzu, they could defeat Kuroki before the Second and Fourth Armies could come to his assistance. If not, it would have been best to have left in the main position a force sufficiently formidable to induce Oyama to retain south of the river, and to cover his communications, the bulk of the Second and Fourth Armies.

Kuropatkin chose the second alternative, and though the force allotted to this task was unduly large, events justified his action.

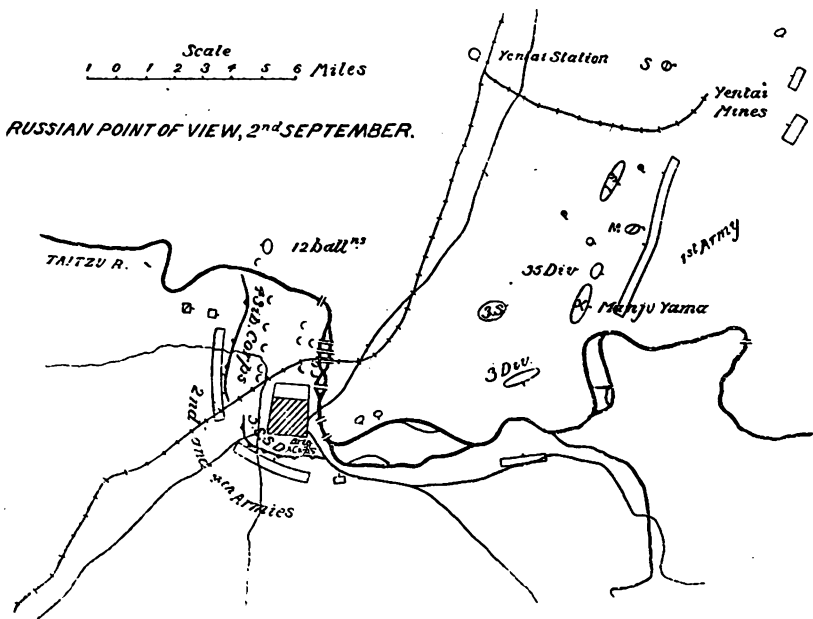
During the night of the 1st September, the Russians lost Manju yama, which was not defended with great energy. (*See Sketch 7.*)

When news of this mishap reached him Kuropatkin came to the conclusion that the hill must be retaken, and as the danger seemed to be greater on the north than on the south bank of the Tai-tzu, withdrew the bulk of the 3rd Siberian Corps (18 battalions and 48 guns) from Liao Yang to the north of the river. At about noon on the 2nd September general instructions were also issued to the 1st Siberian Corps, and to Orlov, that an attack by the X and XVII Corps was to be supported by menacing the right flank of the Japanese. The 3rd Siberian Corps was apparently to be held in reserve, and one division, the 3rd, of the XVII Corps was to remain on the hills west of Manju yama facing a Japanese force—the Guards—on the south bank of the Tai-tzu.

The Russian commander therefore not only proposed a half measure when for all he knew the enemy was aiming at decisive action, but neglected "most careful arrangements to ensure that attacks intended to be simultaneous should be so in reality." As a result, the troops came into action in succession. First Orlov, quitting a strong position at the Yentai mines, advanced rather hastily towards the sounds of battle at Manju yama. Leading his reservists, who had but recently

arrived in Manchuria, through the dense crop of kao liang which covered the ground in every direction, and limited the field of view to a few yards, he stumbled unexpectedly on a force of Japanese, when the Russians already half demoralized by their novel surroundings were easily defeated. Then Mischenko, and the 1st Siberian Corps, who were without maps, lost their way in the kao liang and crossed one another's line of march. Soon afterwards the 1st Siberian Corps met the disorganized troops of Orlov's detachment in headlong retreat, and later, Stackelberg, fearing that his left would be turned from the direction of the Yentai mines, fell back at 6 p.m., after a short engagement with the Japanese, to a village two or three miles to the west. Here he was found by a messenger from Kuropatkin with orders that

SKETCH 7.



in the great attack which was to take place on the 3rd, his Corps was to form the left of the army and was to operate against the right of the Japanese.

At about 6 p.m. on the 2nd, 26 battalions of the X and XVII Corps were collected for an attack on Manju yama. Though, and perhaps because Kuropatkin had himself been present during the day in this portion of the field, some doubt seems to have arisen as to who was in command of these troops, and again they advanced and were beaten in succession.

During the day Kuropatkin had become anxious lest Oku should cross the Tai-tzu below Liao Yang, and had caused a detachment of 12 battalions to be placed on the north bank of the river in position

to meet this eventuality. It would have been wiser to have concentrated every available man against Kuroki, for "success here would have meant ultimate success at all points."

General Zarubaiev, who was in command at Liao Yang, was also directed to make a demonstration from the north of his line to discover whether the Japanese were in force here. This was done, and after a sharp action it was found that no large number of Japanese were in this part of the field. For the rest, the Russians held their own well in the main position, though the reserves, which were apparently employed to reinforce the fighting line, and not "for local counter-attacks," were practically expended in maintaining the position.

During the night of the 2nd September, Kuropatkin, who knew of the disaster to Orlov, heard in quick succession of the events at Liao Yang, where the reserves were said to have been reduced to three battalions, and a deficiency of ammunition was reported, though this was almost immediately remedied by the arrival of a train-load; of the failure at Manju yama; of the retreat of the 1st Siberian Corps, stated by its commander to be in no condition either to go forward or to meet a determined attack; and of the advance of a Japanese force from Pen-hsi-hu on Mukden, which could be opposed only by one of the flanking detachments of about 3,000 fighting men. He had realized that Kuroki was not operating on the line Manju yama-Yen-tai mines with the whole of the First Army, and he feared that the bulk of this Army was about to envelop his left and sever his communications, was perhaps already marching from Pen-hsi-hu for this purpose.

The Russians had still in hand the comparatively fresh 3rd Siberian Corps and a portion, about half, of the X Corps, while the 3rd division of the XVII Corps, which had been containing the Guards, had done but little fighting, and the question presented itself whether these troops were to be employed in one last effort against Kuroki, or whether they should be used to enable the remainder to fall back in an orderly manner on the reinforcements, the 1st European Corps, now fast coming to hand.

In every well-fought battle, and in every well-disputed game or contest in which the personal struggle takes an important place, a moment supervenes when both sides are equally exhausted. In these circumstances, victory invariably inclines to the side or individual capable of just that last effort required to establish superiority.

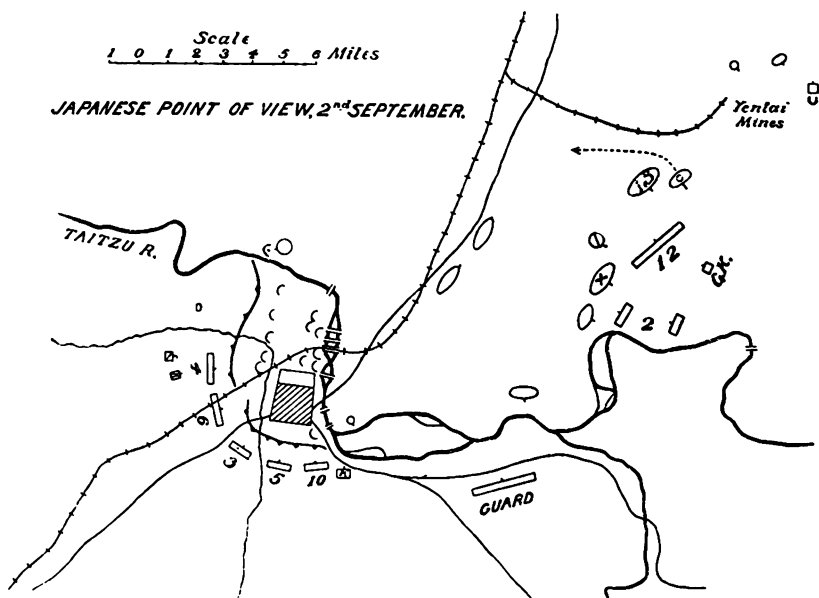
In making this effort the risk of disaster must be incurred, but unless the matter is put to the test it is impossible to ascertain the condition of the opponent, and many commanders and individuals have failed when success lay within their grasp, because they did not dare to hazard all to win all.

Kuropatkin decided to withdraw his army whilst yet he could do so, rather than to follow the principle that, in such circumstances,

"the most effective counter-measure will be to press the attack with renewed vigour, for success here will mean success everywhere." It is now known that his judgment was at fault, and that victory lay within his grasp, for Kuroki's men were practically exhausted.

Japanese operations.—Though Oyama had strong reason to suppose that the main body of the Russians was on the north bank of the Tai-tzu, the Second and Fourth Armies acted with much caution on the 2nd September, passing the whole of the day in constructing, under cover of a vigorous bombardment, and within about 400 yards of the Russian works, lines of trenches into which the infantry were gradually pushed in preparation for a night attack. On their left, however, a Russian counter-attack led to a sharp fight, and a reinforcement of four Kobi battalions was sent to this flank. (*See Sketch 8.*)

SKETCH 8.



Night attacks delivered by both armies at about 8 p.m., 10 p.m., and midnight, were nevertheless repulsed.

In the light of after events it certainly seems that the Japanese were not altogether well-advised in making direct attacks on the works of the main position, and some turning movements across the Tai-tzu, below if not above Liao Yang, might well have been attempted with the object of weakening the defence. That Kuropatkin dreaded such operations proves that they were not impracticable.

During the night of the 1st-2nd September the 15th brigade captured Manju yama, and on the morning of the 2nd Kuroki was informed that the Second and Fourth Armies hoped to reach the Tai-tzu during

the day. As no very serious resistance had been encountered during the 1st September, and as the 2nd and 12th divisions had not been attacked, Kuroki, and not unnaturally, reverted to his original opinion that the Russians were in full retreat, and that he was confronted only by strong rear-guards. In these circumstances, it seemed to be his obvious duty to press on and endeavour to reach the enemy's communications. Orders were therefore issued to the Guards to cross the river, and to the remainder to pursue, Umezawa moving on the Yen-tai mines.

The Guards, faced by a strong force of the enemy, achieved nothing except that they contained the troops who were watching them from the far side of the Tai-tzu.

As to the remainder, the 12th division, after a lucky success over Orlov's reservists, who were surprised in the Kao Liang and routed, was checked by the arrival of two strong columns. On the left the main body of the 2nd division was all day on the defensive and was barely able to maintain the position on the Manju yama, while Kuroki had in hand only seven battalions, two of which were Kobi.

On the 3rd September, Kuroki found the bulk of the Japanese troops who were north of the Tai-tzu too much exhausted for vigorous action, and as the Guards were unable to attempt the passage of the Tai-tzu in face of the Russians, six Guard battalions were in the evening sent round to the north bank by the bridge.

With the exception of one locality, where the Japanese established a footing, the Russians held their own at Liao Yang.

Russian operations.—On the evening of the 3rd September, in spite of the fact that the pressure of the Japanese had distinctly relaxed during the day, the Russian retreat began by withdrawal of the troops from Liao Yang. The withdrawal was carried out with but little interference, for, in retiring, the Russians were able to dismantle or practically destroy all the bridges over the Tai-tzu.

On the 4th the Russians were not seriously molested, and the retirement was continued under cover of the 3rd division of the XVII Corps placed west of Manju yama, and of the 1st Siberian Corps standing on the Yentai railway and for some distance to the north of it, and flanked by Samsonov's cavalry.

On the 5th the Japanese were also held well in check, and by the evening Kuropatkin was able to telegraph to the Tsar that the Russians had extricated themselves from a very difficult position and were well on their way to Mukden.

Japanese action.—During the night of the 3rd-4th September, it was found that the Russians had evacuated Liao Yang, destroying all the bridges over the Tai-tzu except the railway bridge, which was in flames. The city was thereupon occupied by the Fourth Army, which tried in vain to find means of crossing the river.

On the 4th September, a heavy mist shrouded until 11 a.m. the movements of the Russian troops north of the Tai-tzu, and it was not until 2.30 p.m. that Kuroki, though he presumably knew of the capture of Liao Yang, felt himself in position to say that the enemy was at last retreating in reality. Even then the 2nd division was found to be too exhausted to pursue, though the 12th division and Umezawa's detachment endeavoured to make their way along the Yen-tai Railway, where, after nightfall, a sharp encounter took place with a Russian rear guard.

On the evening of the 5th September, Oyama, finding that the Russians had escaped, ordered the pursuit to cease, as it was being carried on only by the 2nd and 12th divisions, and these had not yet crossed the Yen-tai railway line. The other armies, owing to the difficulty experienced in crossing the Tai-tzu, had been unable in any way to press the Russians.

Russian operations.—That the Russian withdrawal was a masterly performance, having regard to the topographical conditions in which it was carried out, may readily be admitted. For all practical purposes the endless fields of kao liang through which the army retired formed a dense forest, the roads through which consisted merely of a puzzling network of swampy tracks. The infantry fell back, as they were almost bound to do in such conditions, in heavy columns, but with such steadiness that the pursuing Japanese were obliged to follow in similar formation, and could take no risks.

When praising the Russian retreat it must not, however, be forgotten that to its success was sacrificed the last hope of victory, and that even the most doubtful victory is preferable to the best-ordered retreat.

COMMENTS.

Various reasons have been assigned for the success of the Japanese, but the truth may probably be expressed in the words of Field Service Regulations, that it was "skill, better organization and training, and, above all, a firmer determination in all ranks to conquer at any cost" that won the Battle of Liao Yang, where the Japanese were in inferior numbers on the battlefield.

The Russian soldiers, with the exception of a few units, nevertheless fought bravely, and that they were worsted was principally due to the fact that they were less skilfully handled. Doubtless, however, the state of efficiency of the army, which left a good deal to be desired, may account for many of Kuropatkin's actions.

War is a conflict of will between commanders as much as a struggle between masses of men, and it is therefore of great importance for a leader to establish and maintain a moral superiority over the commander of the enemy's army. The advantage gained by a general who can achieve this end is shown by the events of this battle, where Kuropatkin, though accounted a determined man, continually sub-

ordinated his movements to those of his adversary, his power of judging correctly forsook him, he ceased to be a free agent, and was contented with those "half-hearted measures" which "never attain success in war."

Kuropatkin's errors can, in part however, be traced to his disastrous misconception as to the strength of Kuroki's army. This proves that if a sound plan vigorously executed is the foundation, "timely information is an essential factor of success in war." The nation, then, which is not in possession of the best available means of obtaining information in war is likely to meet with misfortune.

No battle ever was, or ever will be, won by half measures, by dissemination of force. Concentration for the decisive blow is an elementary principle of tactics, and to attempt, as did the Russian Commander, to legislate for every alternative, results in weakness at all points and in defeat in detail. Victory is gained by generals who gather their forces for one great blow and strike with all their might in the right direction, that is where success will involve disaster to the enemy. In the words of Field Service Regulations, "decisive success in battle can be gained only by a vigorous offensive."

It is perhaps not easy after the event, when every situation seems clear, to realize how very difficult when under the crushing load of responsibility is the task of judging a situation correctly, and of sifting the true from the false out of the mass of conflicting information, which is and must, even with the best means of gaining intelligence, be received in war.

The difference between the difficulty of solving a problem after the event, and of solving it at the time, is the same as between that of navigating a vessel in the ocean in brilliant weather, and navigating in the Channel in a dense fog.

As Frederick the Great remarked: "If we knew as much before a battle as we know after it everyone of us would be a great general."

The course of the battle of Liao Yang does, however, demonstrate in a convincing manner how great an advantage is possessed by a commander who pursues, as did Oyama, a definite plan with fixed determination, over one who, like Kuropatkin, is an opportunist. The Japanese plan was by no means perfect, but, in spite of its imperfections, success was attained because of the tenacity with which the plan was executed.

Lastly, the battle teaches that while there is and must be risk in every operation of war, where gain will be greatest the hazard will be least, for this situation implies that a blow is to be struck at some point of vital importance to the enemy—his line of communication in this instance—and, in such circumstances, the enemy will usually be obliged to abandon the initiative and to subordinate his operations to those of the attacker. As laid down in Field Service Regulations, "success at the vital point will mean success at all points."

XX.

THE SIEGE OF PETERSBURG, 1864-5.

By BRIGADIER-GENERAL G. V. KEMBALL, C.B., D.S.O.

General Nature of the Operations.

BEFORE proceeding to describe the series of operations known to history as the siege of Petersburg, it will be as well to make some remarks on the general nature of the warfare, the tactics employed on both sides, and the condition of the combatants.

In the earlier phases of the war, manœuvre battles had been the rule, and the use of field entrenchments had been confined to certain localities. But ever since Grant crossed the Rapidan at the beginning of May, the fighting had taken place in more or less thickly wooded country. At first, both sides threw¹ up entrenchments to cover themselves when halted, a system which Grant describes in the following words :—

“In every change of position or halt for the night, whether confronting the enemy or not, the moment arms were stacked the men entrénced themselves. For this purpose, they would build up piles of logs or rails, if they could be found, in their front, and dig a ditch,

KEY TO REFERENCES.

M.H.—Papers of the Military Historical Society of Massachusetts.

G.M.—Personal Memoirs of General Grant.

H.V.C.—Humphrey's Virginia Campaign of 1864-5.

B.B.—Butler's Book.

W.H.—Walker's History of the Second Army Corps.

S.W.—Henderson's Science of War.

F.L.—FitzHugh Lee's Life of General Lee.

B.L.—Battles and Leaders of the Civil War.

M.S.—Memoirs of General Sherman.

S.M.—Personal Memoirs of General Sheridan.

N.B.—The number preceding the reference is the serial number of the volume ; the numbers following the reference denote the pages.

For a general map of the country north of the James River see THE ARMY REVIEW, October, 1911.

¹ 2. G.M., 205. 6, M.H., 453.

throwing the dirt forward on the timber. Thus the digging they did consisted in making a depression to stand in, and increased the elevation in front of them. It was wonderful how quickly they could in this way construct defences of considerable strength. When a halt was made with a view of assaulting the enemy, or in his presence, these would be strengthened or their position changed under the direction of engineer officers."

It may be mentioned in passing that this custom resulted in eccentricities of trace positively bewildering when viewed on the ground, especially where troops passed more than once over the same locality. It had also a good deal to say to more than one disaster, and to the curious immobility and failure to grasp opportunities which marked the Federal operations at this period.

In the first few fights in the Wilderness, although both armies threw up breastworks, they had generally issued from them to meet their opponents, as they had done in 1862 and 1863, without availing themselves of shelter.

But, after the desperate fighting of the 5th May, it became the fashion for one side to await the assault of the other behind its defences, and for the assailant to throw up cover to secure the ground gained. But, whereas the Union troops seemed as if anchored to their entrenchments, their opponents were always ready to sally forth to strike their enemy in flank or rear. The general nature of the warfare is thus described by a Federal officer, Colonel T. Lyman, one of General Meade's aide-de-camps²:

"Three years of warfare, constant and severe, had made the soldiers expert in hiding and covering themselves. These were their first ideas at every halt:—To protect their lives by a parapet, and to place that parapet in the edge of a wood, where it would be hidden and would yet command a wide field of fire. In front were the entrenched pickets, not as mere videttes, but strictly as a fighting line, with good supports, and perhaps a grand guard, in the rear. Behind the main line and concealed with equal care were the field batteries.

"In approaching an army thus posted, what can be seen? The answer is in one word—nothing! Perhaps an active signal officer has climbed a tall tree and can thence descry a rod or two of fresh earth that indicates a breastwork, or a drooping battle flag, or some grey staff officer who gallops across an opening. Such are the meagre signs that invite a reconnaissance. As the infantry deploys and the skirmishers push out, the stillness is occasionally broken by the scream of a passing shell, followed immediately by the distant sullen report of the gun that threw it. A neighbouring battery captain immediately trains a piece on the little puff of smoke and tries to silence his opponent. Presently in the dense woods, far in front,

² 5. M.H., 7-9.

are heard two or three musket shots, the signal for a violent spattering fire. The skirmishers have struck the intrenched picket line. And now begins the serious and tedious task of getting back this force, and determining the position and nature of the main entrenchments. To effect this sometimes requires the advance of a line of battle; and, even when a part of the pickets are forced back, a brigade may come out and recover the lost ground. Many weary hours are usually occupied in this desultory, but destructive, fighting, and, at the end of that time, the result along a front of several miles is in no sense uniform. In some places the hostile pickets may be well crowded back, while in others, covered by natural obstacles and strongly defended, the attacking troops may still be far off.

“Meantime, the enemy’s general has leisure to strengthen and reinforce the most exposed parts of his front. These parts, although best prepared to resist an assault, are precisely those most likely to be assaulted, because they are the only ones which have been determined by reconnaissance. And now, even with the best haste, much time must be occupied in bringing up the troops and forming them for the attack; for the woods are imperfectly known, the roads mere cart paths, and the advancing columns are exposed to heavy artillery fire. Thus it happens that, when a charge is finally made, the enemy is found in two well manned lines of breastwork, with intrenched batteries in the rear, and perhaps a slashing in front.

“The whole of such a complex and protracted military operation is well summed up in a single phrase of General Meade, spoken two days after the fight at Coldharbour: ‘In this country, I must fight a battle to reconnoitre a position.’

“The foregoing review shows that it would be very difficult, perhaps impossible even, to determine how well the corps and division commanders pushed their reconnaissances and formed their troops for the final attack. At the very end of the war, commanders did not agree among themselves as to the best formation for storming works. Some approved the old classical column; others favoured successive parallel lines of battle; and there were not wanting those who believed in a series of strong skirmish lines.”

The longer the opponents remained facing each other the more elaborate and formidable became their field entrenchments. The heavy losses experienced in assaulting works of this nature, and the desire to seek a way round, led, in the Petersburg campaign, to extensions of front which were enormous in comparison with the numbers engaged, and to the country round Petersburg and Richmond becoming seamed with hundreds of miles of field works, the remains of which can be traced to this day.

When forces become stationary, the long continuous trace of the infantry lines and their ever increasing relief made it more and more difficult for the opposite side to detect the force behind the parapets

in their front; while the difficulty of surmounting their own works delayed and disordered the attack when an assault was ordered. In addition to the impediments to movement offered by the parapets, must be noted the slashings, abattis and rifle pits that covered the front of each opposing line.

The necessity of constructing openings through these obstacles before an assault, so as to permit of the exit of the storming columns, and the curious disinclination to make these preparations, even when ordered, led, as will be seen, on one occasion to the loss of a great and carefully planned opportunity.

From these conditions it gradually became the custom on both sides to consider that one man per 6 feet of regular parapet was a sufficient infantry garrison, provided that a good flanking fire of artillery was obtainable.³

At Petersburg the actual amount of rifle fire that went on varied much in different localities. Whereas along the front of the 9th Federal Corps, which contained a division of negro troops, against whom the Southerners showed bitter animosity, the firing was incessant, and exposure above the parapet meant almost certain death, in other parts of the line the difficulty was to prevent the soldiers of both sides fraternizing on the debatable ground; and it was the custom of both parties when stationary for any time to give ample warning to the enemy before opening fire.

Immediately opposite Petersburg, as soon as the siege batteries were established by the Federals, the cannonade was heavy, while their mortar fire silenced for a time the opposing batteries and rendered necessary the construction of bomb-proofs.

With the exception of the "battle of the crater" and the final assault, the fighting that took place was brought on, either by the extension of the Federal left to seize the railways, or by their demonstrations on the right to threaten Richmond and to prevent Lee from detaching troops in other directions.

As regards the fighting on the western flank, two points should be noted, which explain in great measure the successes which small forces of the Confederates achieved against very superior numbers.

In the first place it will be observed that the roads in this section radiate from Petersburg, and were therefore favourable for Confederate movements, while the lateral communications were mere cart tracks through forest with a particularly dense undergrowth. In this labyrinth the Federal movements were necessarily slow.

The other point—and it was one that went far to make up for disparity in numbers—was that the Confederates could find guides to lead them with certainty from point to point: while the Federals were ignorant of the locality and were like men groping in the dark.

³ 82. W.R., 638. 6. M.H., 463. 5. M.H., 216.

In this intricate country of forest and clearing, without marked natural features, maps, such as there were, had but limited value. It should also be mentioned that sometimes it was not even possible to march to the sound of the cannon. Instances occurred of troops hearing nothing of fighting occurring in their immediate vicinity, which was clearly audible to others at a much greater distance; and, even when firing was heard, it was often doubtful from which direction the sound came.⁴ In such conditions it is not surprising to find that on the Federal side the cautious generals became slower and slower, the less competent more incapable of effecting anything themselves or supporting their comrades; while even skilled and determined leaders like Hancock suffered from surprise and became involved in difficulties from want of support.

CONDITION OF THE FEDERALS.

Owing to the nature of the country and of the fighting, this period of the war is marked by disproportionate losses in missing as compared with killed and wounded. These losses in prisoners, were, however, not confined to the Union side; and in justice to the Federal commanders it must be added that the Union generals were much handicapped by the quality of their troops at this period. The probable behaviour in action of the 100 day men had indeed always been a source of grave anxiety, but the new conscripts constantly broke in panic or surrendered without resistance.

It was not till the winter had passed that the Army of the Potomac regained the efficiency, which bore fruit in rapid marches and skilful combinations when Lee broke loose from Richmond.

But during the siege of Petersburg that army was at a low ebb, and its composition was undergoing a serious change. The smaller Regular element had disappeared, the few survivors had been withdrawn for service on the Indian frontiers, and the fate of the rest is best described by the answer of General Ayres, commanding 2nd Division 5th Corps, to the following question put to him by the Warren Court of Enquiry⁵:—

“Q.—Had you any of the Regulars of your division here (at Five Forks)?”

“A.—No; the Regulars had been buried. I had Regulars—what were known as the Regular division⁶—before I went into the battle of Gettysburg—I left one half of them there and buried the rest in the Wilderness. There were no Regulars left.”

⁴ H.V.C., 301, 349.

⁵ 6. M.H., 389.

⁶ At the beginning of the war there were ten regiments of regular infantry, and eight more were subsequently raised; but at no time during the war did the Regular Army attain a strength of 25,000 men.—2. M.S. 383.

The original volunteers who formed the bulk of the Army were either dead or their engagements had expired or were expiring. The larger part of the troops furnished by the States under the calls made this year, and until the end of the war, were supplied by the re-enlistment of veterans whose service had expired; but these seasoned soldiers were not sufficient to fill the quota, and recourse had to be taken to bounties, and where that inducement failed to the "draft."

The enforcement of the draft led to serious riots and to the introduction of many worthless "substitutes" into the Army; and the enormous bounties offered by some of the Northern States for voluntary enlistment produced a class known as "bounty jumpers," men who made desertion and re-enlistment a lucrative business. Many of these men were detected in the practice, and the gallows erected for their benefit in the Federal lines before Petersburg were in frequent requisition.⁷

COMMENTS ON THE FEDERAL ARMY SYSTEM.

As to the effects on the Union Army of this partially compulsory system, General Francis A. Walker, the historian of the 2nd Corps, expresses a very decided opinion.

Writing 20 years after the war, he says⁸ :—

"It is difficult at this time—it was difficult even in 1865—to go back to the sentiments and feelings which moved the citizen soldiery of 1861-62, fresh from their homes, before custom had staled the ideas of patriotic sacrifice and martial glory; before long delays and frequent disappointments had robbed war of its romance, and a score of melancholy failures had stained our banners with something like disgrace; before the curse of conscription had come to make the uniform a thing of doubtful honour, and to substitute the 'bounty jumper' for the generous volunteer; while yet all the soldiers in the field were those who sprang to arms in that great uprising of a free people. Yet none who remember the first winter camps of the Army of the Potomac can have wholly forgotten the high resolve, the fervid enthusiasm, the intense susceptibility to patriotic appeals, the glad and joyous confidence in the speedy success of the Union cause which animated officers and men. . . . A state of feeling like this is a tremendous power. Such Hoche found it in 1793; such Napoleon found it, when he commanded the Army of Italy; such McClellan found it in the Army of the Potomac. Doubtless, discipline and experience of war, even through disaster and humiliation, brought a compensation for the loss of this early spirit; . . . yet not the less was the spirit of the earlier time a thing beautiful and precious."

⁷ H.V.C., 283. W.H., 317. 5. M.H., 315-6.

⁸ W.H., 11-12.

General Sherman has expressed himself to the same effect. Writing in 1875, he says⁹ :—

“ We tried every system known to modern nations, all with more or less success—voluntary enlistments, the draft, and bought substitutes—and I think that all officers of experience will confirm my assertion that the men who voluntarily enlisted at the outbreak of the war were the best, better than the conscript, and far better than the bought substitute.”

The late Colonel Henderson, who made a close study of the American War, is even more emphatic.¹⁰ “ The War of Secession,” he says, “ affords the most ample evidence of the truth of the old proverb that one volunteer is worth three pressed men. At the outset the Regular regiments were undoubtedly the staunchest troops in either camp. As the war went on the ranks thinned under the fearful slaughter of many battles, both Unionists and Confederates were compelled to adopt the ballot, but the conscript soldiers, as well as those who had sold themselves for enormous bounties, fell short in every respect of the volunteers; they were more liable to panic, less forward in attack, more prone to insubordination, less stubborn in defence, and it was a common opinion in the North that they were even inferior to the negroes.”

In another paper he remarks¹¹ :—

“ In the preceding pages I have said little of the good qualities of the American soldiers. I am none the less convinced that in some respects they were superior, as every army of volunteers will always be, to the conscript levies of European States.”

These opinions may seem strange to many at the present day; but it is worth noting that compulsory service has to be combined with thorough training and iron discipline to neutralize the disadvantage of having in the ranks men who fight, not willingly, but under compulsion. The Confederacy suffered less from this disadvantage than the Union, as the South was fighting for its very existence, and a man of military age could scarcely evade the risks of warfare, except by surrendering or deserting to the enemy.

FEDERAL RESOURCES.

As regards supplies, clothing and equipment of all sorts, the Federal Army before Richmond was never in want. Its land communications extended only to the banks of the James, and were practically invulnerable; while the complete command of the sea, gained by the Federal Army, placed Grant in touch with every port in the North.

The City Point Railroad was put in order without delay, and by the end of June supplies were brought by rail from the wharves at

⁹ 2. S.M. 386-7.

¹⁰ S.W., 385.

¹¹ S.W., 229.

City Point to the right flank of the Union lines. In about two months more a military railway was running from the City Point line along the rear of the Federal lines, and was eventually extended up to and beyond the Weldon Railroad.¹²

RELATIVE STRENGTH.

Nothing is more difficult than to disentangle from the contradictory statements of historians and the far from uniform returns in the war records the relative strength of the combatants during this campaign.

Southern writers usually claim that Lee was outnumbered by about four to one. This is no doubt an exaggeration. But on the Northern side there appears a tendency to minimize the Union numbers and overestimate the forces at the disposal of Lee.

Colonel T. J. Livermore, the author of "Numbers and Losses in the Civil War," who served on the Staff of the 2nd Federal Corps, has made an exhaustive study of the subject, and he is an authority worthy of all respect; but the figures he gives for Lee's and Grant's armies from June to December, 1864, when compared with the authorities he quotes, are not wholly convincing; and it is observable that large deductions are made from the numbers given in the Union returns, while unexplained additions are made to the Confederate numbers.

The following are the figures given by Colonel Livermore as "present for duty" in the two armies¹³:—

June to December.	Union.	Confederate.
June 30	137,454	65,562
July 31	93,542	61,623
August 31	69,206	55,622
September 30	88,308	51,200
October 31	99,728	56,911
November 30	103,442	66,717
December 31	124,278	65,692

Even accepting this computation without reserve, it will be seen that Grant, after holding his lines with a force equal to the whole of the Confederate forces opposed to him, must have had, except for a short period, from 30,000 to 60,000 men available for active enterprises. It ought, therefore, to have been possible for Grant to withdraw safely considerably more than that number from the entrenchments, and also to ensure a superiority of at least two to one in the open field. But during the siege it would seem that the Federals

¹² 91. W.R., 477. 5. M.H., 311. ¹³ 6. M.H., 461.

always over-estimated Lee's strength, if reliance is to be placed on the statement of General A. L. Long, at one time Military Secretary to the Confederate leader.

That Staff Officer relates a conversation which took place between General Lee and General Meade on the afternoon of the day of the surrender, in the following words:—

"Meade had made a friendly visit to Lee at his headquarters, and in the course of the conversation remarked, 'Now that the war may be considered over, I hope you will not deem it improper for me to ask, for my personal information, the strength of your army during the operations about Richmond and Petersburg.'

"General Lee replied, 'At no time did my force exceed 35,000 men; often it was less.'

"With a look of surprise Meade answered, 'General, you amaze me! We always estimated your force at about 70,000 men.'"

This conversation was repeated to Colonel Long by General Lee immediately after his visitor had withdrawn. (Long's "Memoirs of Robert E. Lee," page 426.)

CONDITION OF THE SOUTH.

The resources of the South were approaching exhaustion. The Confederate troops suffered more and more from want of food and insufficiency of boots and clothing, and there was a constant stream of deserters to the Federal lines.

The general situation is thus described by General FitzHugh Lee¹⁴:—

"Conscription in 1862 first placed on the rolls all men between 18 and 35, and later between 40 and 45, and in February, 1864, the Conscription Act was more stringent, and the population between 17 and 50 were made subject to call—'a robbery,' designated at the time, 'of the cradle and the grave.'¹⁵ The end of conscription had been reached. The currency in the Confederate treasury was in value as 60 to 1 of coin. A deficiency in supply of arms and ammunition was imminent. The Ordnance Department contained only 25,000 stand of small arms for the whole Confederacy; the foreign market supplied one half of the arms used, but that market was nearly cut off; many workshops had been destroyed, and the usefulness of others much impaired by the withdrawal of details of men.

"Then General Lee was distressed at the condition of his army. It had been exposed in a violent campaign against overwhelming numbers, was badly fed—a pound of flour and a quarter of a pound of meat to the man—badly paid and cared for in camp and hospital,

¹⁴ F.L., 350-1.

¹⁵ This was an epigram of General Butler's

and every letter brought news of the families of the troops suffering at home. As his resources diminished, those of his opponent seemed to increase. He was too weak to assume the offensive against fortifications, and yet something must be attempted to diminish the troops in his front by threatening the Federal capital."

As the diversion alluded to affected events around Petersburg, a brief description of it will be given before entering on the narrative of the operations of the main armies of Lee and Grant.

EARLY'S RAID.

Early had been despatched by Lee at the beginning of June with part of Ewell's old corps to reinforce Breckinridge, who was opposing Hunter, the Commander of the Federal forces operating from the Shenandoah. That Federal general retreated from Lynchburg on 19th June to the mountains of West Virginia, whereupon Lee left it to Early to decide whether his command could threaten Washington, as originally designed, or whether Early's forces should return at once to rejoin Lee's army at Petersburg. Early, who at this time showed some daring, decided to make the attempt against the Federal capital. He accordingly pushed down the Valley, crossed the Potomac, defeated the Federal force sent to intercept him, and at noon, July 11th, arrived in front of the works at Washington with about 10,000 men and 40 guns. In the afternoon his troops were placed in position to assault the works next morning; but General Wright, with the 6th Federal Corps from the Army of the Potomac, and General Emory with part of the 19th Corps from New Orleans, arrived by sea just in time to render a Confederate attack hopeless.

Even had Early entered Washington he could not have held it long with his small force, but his raid caused great consternation, not only in the capital, but throughout Maryland.

On the night of the 12th July, Early withdrew without fighting and gradually fell back to the Valley. On the 23rd, finding all pursuit had ceased, he took the offensive, drove a Federal force out of Winchester on the 24th July, and made a raid into Pennsylvania on the 30th July, which seriously disturbed Grant's plans at Petersburg.

ABORTIVE MOVEMENT AGAINST WELDON RAILROAD.

After this preliminary digression, let us return to the armies lying before that city.

The Federal operations up to the 18th June had placed in Grant's possession two of the four railways entering Petersburg, but the two western and most important lines still remained open to the Confederates.

After giving his troops several days rest, Grant began his first movement to the left to secure these railways. On the 21st June some 40,000 men of the 2nd and 6th Corps were moved with the view

of extending from the left of the 5th Corps on the Jerusalem Plank Road to seize the Weldon and Southside Railroads, and thence envelop Petersburg to the Appomattox on the west. The country here, though fairly clear immediately in front of the Confederate lines, was mostly woods with thick undergrowth. The Federal advance was consequently not only slow, but became disconnected, and Lee, gaining information of the movement, determined to strike. He thus expresses his views at this time in a letter to one of his generals, probably A. P. Hill¹⁶ :—

“The time has arrived in my opinion when something more is necessary than adhering to lines and defensive positions. We shall be obliged to go out and prevent the enemy from selecting such positions as he chooses. If he is allowed to continue that course we shall at last be obliged to take refuge behind the works of Richmond and stand a siege, which would be but a work of time. You must be prepared to fight him in the field, to prevent him taking such positions as he desires, and I expect the co-operation of all the Corps commanders in the course which necessity now will oblige us to pursue.”

That Lee was not very sanguine at this time of keeping open his communications for long is evident from a despatch of his to the Secretary of War on the 21st June, which begins :—“It will be almost impossible to preserve the connection between this place (Petersburg) and Weldon.”¹⁷

In pursuance of Lee's general plan, A. P. Hill was despatched with Mahone's and Wilcox's divisions, numbering less than 10,000 men, down the Vaughan Road; another division being held in support. On the 22nd June the 2nd Federal Corps began to wheel up north and entrench at the edge of the open ground in front of the Confederate lines, while the 6th Corps continued moving west by a road leading to the Weldon Railway near Globe Tavern. An interval of about a mile thus arose between the two corps. Into this Mahone's division was skilfully thrust while Wilcox's division got south of the 6th Corps.

The Confederate divisions, though independent of each other, were acting together, and arrangement had been made for a simultaneous attack on the unsuspecting foe; but for no apparent reason things went wrong at the last moment.

Mahone carried out his part with vigour and with his small force surprised and routed a portion of the 2nd Federal Corps, with a loss of 1,700 prisoners, four guns and several colours.

Wilcox, though he found himself directly in rear of the 6th Corps when it turned northwards, seems to have failed to comprehend the situation, for he withdrew to the railroad without really engaging the enemy.¹⁸

¹⁶ 81. W.R., 702-3.

¹⁷ 81. W.R., 671.

¹⁸ 5. M.H., 244-5.

Thus failed the first Federal attempt to seize the Weldon Railroad, and things remained very quiet on this flank until the 15th August, the 2nd Corps being withdrawn into reserve and the 6th detached elsewhere.

The 2nd Corps up till now had held a distinguished record, and the affair of the 21st June was its first disaster. The episode is thus summed up by its historian, Brigadier-General Francis A. Walker¹⁹ :—

“The whole affair was over in a very short time. Nothing but the extraordinary quickness and precision of the Confederate movements on this occasion would have made such a result possible.

“The 2nd Corps had been defeated almost without being engaged. There had been very little fighting and comparatively small loss, except in prisoners. Of these the 2nd Corps had lost 1,700—more than it had on the Peninsula—more than it had at Antietam, Fredericksburg, and Chancellorsville combined. . . . The whole operation had been like that of an expert mechanic who touches some critical point with a fine instrument, in exactly the right way, producing an effect seemingly altogether out of proportion to the force exerted. The enemy's success was, of course, facilitated, if not, indeed, alone made possible, by the thickets through which our troops were moving, and by their own intimate knowledge of the ground.”

General Hancock, owing to the breaking down of a severe wound he had received at Gettysburg, had been absent on the 21st June. On his return a few days later he appealed to the traditions of his corps in a stern order, which was to be read at the head of every regiment, but was not to be given to the Press.²⁰

Unfortunately the deterioration of the corps was too deep seated for traditions to be of much avail, and the corps failed its gallant commander badly two months later, but when seasoned it again did splendid work.

CAVALRY OPERATIONS.

While this infantry fighting was proceeding near the Weldon Railroad, the cavalry had not been idle on both flanks of the Union Army.

On the right flank Sheridan, returning from his raid against the Virginia Central Railroad, had reached White House on the Pamunkey closely followed up by Wade Hampton with two cavalry divisions. Breaking up the depôt there, in accordance with Grant's orders, Sheridan started on the 22nd June to escort a train of 900 wagons to the James. On the night of the 20th and morning of the 21st, General Butler, with admirable foresight, had effected a lodgment with one brigade of infantry on the left bank of the James at Deep Bottom, had laid a pontoon bridge across the river from Bermuda

Hundred and covered it by a *tête de pont*. Grant had intended at first that Sheridan should cross by this bridge; but the enemy was too active for this point of crossing to be practicable, and the safer but slower expedient of ferrying across the river lower down, near Fort Powhattan, had to be adopted. The bridge head was, however, always maintained by the Federals; a second pontoon bridge was subsequently laid, and the lodgment strengthened and extended, so that the Deep Bottom crossing played a very important part in Grant's subsequent operations.

During the march across the Peninsula, Gregg's Cavalry Division, which had taken up an entrenched position at St. Mary's Church covering Sheridan's flank, was fiercely assailed by Hampton and FitzHugh Lee in front and right flank, and was driven back in some confusion on Charles City Court House after a stubborn fight.

The Federal trains were nevertheless ferried across the river on the 25th and 26th June, the cavalry following them; and as no further advantage was to be gained here, Hampton and FitzHugh Lee, on the 26th June, were ordered by General Lee to quit Sheridan and cross the James at Drury's Bluff. W. H. F. Lee's Cavalry Division had already been withdrawn from the left bank of the James to Petersburg, and was now pushing southward, following the cavalry of the Army of the Potomac, who, under Wilson, were engaged on an important raid.

On the 27th June, Hampton and FitzHugh Lee on the Confederate side, and Sheridan's cavalry on the Federal side, alike received orders to push on in the same direction, severally to intercept or aid Wilson.

We must now follow that cavalry leader's operations.

So fully did Grant realize the importance of cutting the Weldon and Lynchburg Railways that simultaneously with the movements of the 2nd and 6th Corps just described—operations which were intended to secure those lines close to Petersburg—he had planned a great cavalry raid to destroy the railways further afield. Wilson's Cavalry Division, however, required rest after its arduous duties in the Peninsula, and it was not till the 22nd June that this general was able to start with his own and Kautz's Cavalry Divisions, numbering 5,500 men.

Wilson was ordered to move, so as to avoid the observation of the enemy near Petersburg, and then by the shortest routes on Burkesville Junction, to destroy both the railway lines just mentioned to the greatest extent possible, and open up communication with Hunter, who was supposed to be near Lynchburg.

Wilson, though he was unable to get in touch with Hunter, who had retired, carried out these duties with great success, in spite of being continually harassed by W. H. F. Lee's Cavalry Division. He destroyed 30 miles of track from Burkesville towards Petersburg, and another 30 miles from Burkesville towards Danville, as well as the Junction itself. When nearly 100 miles from Petersburg he

determined to return, but General W. H. F. Lee followed him closely, and kept General Lee well informed of Wilson's movements; with the result that Hampton and FitzHugh Lee's Cavalry Divisions, supported by two infantry Brigades, intercepted Wilson on the Weldon Railway, between 10 and 20 miles south of Petersburg, before Sheridan could get to his assistance, and completely broke up Wilson's command in a series of engagements. Kautz's division of Wilson's command escaped in a disorganized state, but Wilson's own division was routed, the two together losing 1,500 men, 12 guns and all their wagons, as well as a very large number of horses.

The Federal cavalry had been in the saddle, or destroying railways, for nine days, and were so tired that they fell asleep under fire, and many were captured asleep on the road. At no place had they rested more than six hours, and for the last four days at no time longer than four hours.

By the time Wilson reached the James on the 2nd July, his command had covered over 300 miles and destroyed 60 miles of railroad in 10½ days. It appears to have been some weeks before these cavalry divisions could be remounted and made fit for service.²¹

As on starting, the cavalry had been ill supplied with rail twisters and other tools requisitioned by Wilson, the T-rails with which the Danville line was equipped could not be thoroughly destroyed, and were merely laid on piles of burning sleepers, or covered by wooden fence rails which were then set alight.²² Repairs were begun at once by the Southerners, and in correspondence of the 28th and 29th June, between Lee and the Secretary for War, it is stated that rails were being taken up from less important lines, and that the Danville Railroad would soon be running again. Indeed, Lee expressed anxiety that no mention of the restoration of the line should be made in the Press.²³

In a letter of 8th July, Lee, however, complains that the Danville Company were not repairing their line.²⁴

The Virginia Central Railroad, north of Richmond, which had been damaged by Sheridan in the middle of May, was reopened to within 4 miles of Staunton in the Valley by the end of June, although 9 miles of road and many bridges had been burned.²⁵

These facts are mentioned incidentally to show the difficulty of effecting lasting damage to a railway; a matter on which there is a very common misconception.

It may also be added that a month before Wilson's raid, General Kautz had made two very similar raids against the Weldon and South

²¹ H.V.C., 241. Many interesting details regarding this raid will be found in 80. W.R., 620 et seq.

²² H.V.C., App. J. 80. W.R., 31.

²⁴ 82. W.R., 749.

²³ 81. W.R., 696, 697, 701.

²⁵ 82. W.R., 697.

Side Railroads, destroying several important bridges and stations. The damage done by this cavalry division had evidently been made good for all practical purposes by the time Wilson's raid took place.²⁶

During the month of July there was a lull in active operations before Petersburg owing to the diversion caused by Early's raid on Washington, which entailed the detachment of the 6th Corps and the drawing in of the Federal left flank to the Jerusalem Plank Road.

A continuous line of siege trench was, however, completed, and a powerful siege train of 40 siege guns and 40 heavy mortars placed in battery opposite Petersburg. The fire from the latter ordnance was particularly effective, and kept the Confederates busy constructing bomb-proofs.

THE PETERSBURG MINE.

A mine, too, had been commenced from the front of the 9th Corps on the 25th June, and by the 28th July it was finished and charged with 8,000 lbs. of powder. The gallery of approach was 510 feet long, and the lateral galleries extended under the Confederate works for about 40 feet on either side, at a depth of 22 feet below the surface.

The mine had been designed by Colonel Pleasants, of the 48th Pennsylvania, and was executed with improvised appliances by his regiment, which was largely composed of miners.

In this part the ground sloped upwards from the Federal lines, and in their rear fell steeply into a ravine. The site for mining operations had been well selected for concealment from the enemy's view, and for the short distance, 130 yards, that here separated the opposing lines; but in other respects it was not well chosen.

The enterprise was due to individual initiative and not to a comprehensive plan. Meade and his engineers were not in favour of the locality selected, but the work was allowed to go on "as a means of keeping the men occupied."²⁷ The mine was directed against a work known as Elliott's Salient; but the so-called salients in the Confederate lines appear to have been mostly artillery redans, one of which seems to have been constructed on the front held by each Confederate brigade to flank the general line with its fire. This particular redan was in a re-entering angle of the general line, and the ground in front of it could consequently be swept by cross fire.

The existence of a mine on the 9th Corps front, but not its exact situation, was ascertained by the Confederates from deserters. Additional batteries were erected to sweep this front, and about the 12th July counter-mines with listening galleries were commenced from four different points. These were, however, at true salients, and the Federal mine, being directed between shafts 1 and 2 of the Confederates, was never detected by them.²⁸

²⁶ B.B., 649-651.

²⁷ 5. M.H., 212, 226, 228. 2. G.M., 307.

²⁸ 82. W.R., 771-2-4-6, etc.

THE FIRST DEEP BOTTOM EXPEDITION.

When the mine was approaching completion, General Grant decided to make use of it to storm his way into Petersburg, and he made arrangements to facilitate the assault by a strong diversion north of James River. On the 25th July the 2nd Corps, under Hancock, and three cavalry divisions under Sheridan, crossed the James to make a dash on Richmond, and, if possible, destroy the two northern railroads where they crossed the North and South Anna (tributaries of the Pamunkey River).

This movement, it was hoped, would cause Lee to withdraw troops from Petersburg.

But Hancock with the 2nd Corps, who, followed by Sheridan with his Cavalry Corps, crossed by the two pontoon bridges at Deep Bottom, found he could do nothing against the strong Confederate force entrenched from Bailey's Creek to Fussell's Mill.

All sorts of devices were tried to deceive Lee into thinking that the Federal troops on the left bank of the James were being reinforced. Sheridan relates that on the night of the 28th he marched one cavalry division back over the pontoon bridge after covering the roadway with refuse hay to muffle the tramp of the horses. The next morning he marched the division back again on foot in full view of the enemy to create the impression of a continuous movement of infantry to the north side.²⁰ These artifices had the intended effect; for Lee moved the bulk of his forces across the river, three infantry divisions, less one brigade, and one cavalry brigade only, being left in the Confederate lines at Petersburg. On the night of the 29th Hancock and Sheridan withdrew, after incurring a loss of 300 men only, to take part in the assault on Petersburg.

THE ORDERS FOR THE ASSAULT.

The orders for the assault were concise and clear. Burnside, in whose front the mine lay, was directed to form the 9th Corps during the night for the assault, to prepare his parapets and abattis for the passage of columns, to have pioneers equipped for opening passages for artillery, destroying enemy's abattis, &c., and to distribute entrenching tools for forming lodgments, &c. Warren, on his left, was directed to hold his entrenchments with as few men as possible, and mass the rest of the 5th Corps on his right ready to support the 9th Corps assault. He was to make similar preparations to those of Burnside regarding pioneers, &c.

The 18th Corps, under Ord, was to be relieved in its trenches on the right by Mott's division of the 2nd Corps, and be formed immediately behind the 9th Corps to support its assault, but especially

²⁰ 1. S.M., 449-450.

on the right of the latter. The 2nd Corps, under Hancock, was to be prepared at daylight to follow up the assaulting or supporting columns. Special instructions were also given to the cavalry, artillery, and engineers. At 3.30 a.m. on the 30th July, Burnside was to spring his mine and immediately move his assaulting column on the breach, seize the crest³⁰ in rear, and effect a lodgment supported on the right by Ord and on the left by Warren. All artillery that could bear on the point of attack was to open fire immediately on the explosion, but care was to be taken not to impede the assault. Instructions were added as to reports, &c., and General Meade's position fixed at the headquarters of the 9th Corps. These orders should have ensured a well combined and effective assault, and General Grant subsequently stated that with full knowledge of events he could suggest no improvement in the orders, except that which Meade could not foresee—"different men to execute them."

General Meade was not content with issuing orders in writing, for in a personal interview with General Burnside and three of the 9th Corps divisional commanders on 29th July, he endeavoured to impress upon them, first, that immediate advantage must be taken of the confusion of the enemy, caused by the explosion of the mine, to gain the crest beyond; that holding the crater would be of no possible use; second, that if the assault was unsuccessful the troops must be withdrawn at once.³¹

THE BATTLE OF THE CRATER.

In spite of these preparations Grant's path was dogged by misfortune. There was a delay of over an hour at starting; for the mine, owing to defects in the fuzes, of which there were three, was not sprung till about 4.44 a.m.³² in broad daylight; but it blew a great gap in the front line of the Confederate works, damaged the second, and formed a huge crater in between. For 200 or 300 yards on each side of the crater the Southerners fell back, leaving their works deserted.

It was half an hour before the Confederate musketry was at all effective, and nearly an hour before their artillery fire—and that from six sheltered guns only—was brought to bear.³³

The Federal assault is thus described by Brigadier-General Weld, who led a half brigade in the second line of the leading division of the 9th Corps³⁴ :—

³⁰ Supposed to be 400 yards distant, in reality a good deal more.

³¹ H.V.C., 254.

³² At 4.35 a.m. Meade ordered Burnside to assault at once if his mine had failed. Fortunately, it went off before this order could be executed.—80. W.R., 140.

³³ H.V.C., 256.

³⁴ 5. M.H., 208-9.

He writes—"A heavy shaking of the earth, with a rumbling, muffled sound, was our notice of the explosion. Looking to the front, timbers, sticks and debris of all kinds were seen in the air, accompanied by a vast mass of dust and earth, followed by the white smoke from the powder, which rolled out in immense volumes, hiding the dust and everything else. It seemed as if a portion of this mass must fall on us. Instinctively the troops rose and tried to fall back to avoid this danger. The disorder was but momentary. Artillery in the rear and on both flanks opened fire on the enemy's lines almost simultaneously with the explosion. Still there seemed to be no movement forward of the troops in front of us.

"Soon, however, say in five minutes from the time of the explosion, instead of a line of battle, a straggling line of men by twos and threes³⁵ were seen running over the space between the two lines towards the crater. When our turn came, we found the only chance to get over our line of breastworks was a space not over 10 feet wide, where sandbags had been piled up by the troops who preceded us. I tried to climb the parapet in two or three places, but was unable to do so. Soldiers with muskets and accoutrements could not get over. As I recall our line, there was a ditch some 8 feet deep, with a step 2 feet up to enable our men to fire. In front of our line were abattis, which were practically no impediment. In front of the enemy's lines were *chevaux de frise* fastened together with wire. These were cut, and the *chevaux* swung to the front.

"When the troops first started, there was absolutely no firing from the Confederates. When two-thirds of my wing of the brigade was over, I crossed, the fire being then only moderate and from musketry. The interval we had to cross was about 125 yards over slightly ascending ground, open and free from woods. On reaching the crater, we found an immense hole 25 feet deep, 50 wide and 100 long.³⁶ Several Confederates were lying here mangled and bruised, one man buried to his waist, another with feet only projecting out. Several prisoners were taken here and on each flank. Two hundred and seventy-six Confederate officers and men were killed by this explosion.

"Here, in the crater, were a confused mob of men continually increasing by fresh arrivals. Of course, nothing could be seen from this crater of the situation of affairs around us. Any attempt to move forward from this crater was absolutely hopeless. The men could not be got forward. It was a perfect mob, as far as any company or regimental organization was concerned, and that necessarily from the way we went forward, and not from any fault of the officers or

³⁵ Marshall's 2nd Brigade, 1st Division. 80. W.R., 527.

³⁶ "At least 200," according to Colonel Pleasant's report; about 170 according to his plan.—80. W.R., 556 et seq.

men. To ask men to go forward in such a condition was useless. Each one felt as if he were to encounter the whole Confederate force alone and unsupported. The moral backing of an organized body of men, which each one would sustain by his companions on either side, was wanting.

“As soon as possible I got my men out of the crater into the works on the right, and tried to re-form there. A second line³⁷ or parapet, some feet higher than the enemy's front line, led from the crater obliquely to the rear. This would have given us a good line of defence had it not been taken in rear by the enemy's front line, which was occupied by them some 200 yards from the crater. The intervening space between this rear line and the front line was cut up in every way by bomb proofs, traverses and pits. I pushed my regiment down to the right and endeavoured to clean out the pits still further. The fire was too hot to do much and the ground too broken. The enemy by this time was using artillery, chiefly canister.”

The two supporting divisions of the 9th Corps moved out after the leading division and reached the enemy's line on each side of the crater, but made no headway. All three divisions could only straggle across the 9th Corps entrenchments owing to no openings having been made.

Reiterated inquiries from Meade as to progress and orders to push for the crest only elicited an insubordinate reply from Burnside.³⁸

About 6 a.m., being informed by Burnside that the Confederate lines opposite the 5th Corps were apparently empty, Meade instructed Warren to advance if possible, but that General temporized and did nothing. General Ord about the same time was ordered to push in with the 18th Corps. With some difficulty, one of his brigades got across the 9th Corps entrenchments, but, after gaining the enemy's works, fell back again.

About 8.30 a.m. the coloured division of the 9th Corps was put in; but, in spite of the gallant efforts of its officers, a part of it rushed into the crater, which was now a seething mass of humanity ploughed by mortar shells. Some portion, however, of the negro regiments advanced well beyond the Southern entrenchments and attempted to gain the crest; but, being charged by the Confederates, these raw troops broke, upon which the whole division got up and fled, carrying with them most of the white troops lying on the flanks and rear of the crater.

Judging that success was hopeless, Meade at 9.45 a.m., with Grant's concurrence, directed the suspension of further offensive movements and withdrawal when it could be effected. Soon after this two or more Confederate attacks on the crater were repulsed.

³⁷ A retrenchment constructed by Beauregard.

³⁸ 80. W.R., 173-6.

At half past twelve Burnside sent orders to the brigadiers in the crater to decide when and how they should withdraw. The enemy, however, settled this matter for them between 1 and 2 p.m. by an attack of Johnson's and Mahone's divisions; whereupon two of the brigade commanders in the crater hastily gave the order to retire. The larger part of the troops then fell back, and it was during this retirement that most of the loss was sustained, though the distance was little over 100 yards. Most of those in the crater—according to General Burnside—were captured, many of them being wounded men. General Mahone states 1,101 prisoners were taken from it—a number that is barely credible.³⁹

The losses of the Federals in this disastrous affair are stated by various authorities to have been between 3,500 and 4,400. The Confederate loss was about 1,200 men.

In Grant's despatch of 1st August, 1864, he observes⁴⁰:—"It was the saddest affair I have witnessed in the war. Such opportunity for carrying fortifications I have never seen and do not expect again to have."

Grant's plans nevertheless had been well laid; he had successfully drawn the bulk of Lee's army north of the James, where it still remained, 16 miles distant. Most careful orders had been drawn up by Meade, and there seemed every prospect of a success which would disorganize Lee's defence.

The mine was in a way successful. The Confederate centre was pierced, but the apparently inadequate garrison left in the Petersburg lines was able, not only to repel the Federal assault, but to inflict a serious reverse, and that largely by means of a brigade withdrawn nearly 5 miles from the right, which did not arrive on the scene until four hours after the mine was sprung—a striking proof, if any were needed, of the tenacity and spirit of the great Confederate commander and his troops!

A Court of Enquiry was ordered by President Lincoln to report upon this affair, and sat for 17 days in August, and the Committee on the Conduct of the War further inquired into the facts at a later date.

It was established that General Burnside had neglected to carry out practically every preparation that had been ordered, that two of his divisional commanders had been guilty of gross misconduct, and that another divisional commander and a brigadier of the 9th Corps had been exceedingly remiss.

It is also fairly evident, and it is believed to have been General Grant's opinion, that General Warren could have carried all before him had he attacked with the 5th Corps. Meade did not like to leave the place he had appointed as his headquarters, but the view has been expressed that if he or Burnside had gone to the front, or if the

³⁹ 80. W.R., 18, 529. H.V.C., 263.

⁴⁰ 80. W.R., 17.

divisional commanders had done their duty, the troops could have been pushed on to the crest and Petersburg would have been taken. As it was, the crater proved an irresistible attraction and, once packed tightly inside this pit, with its steep sloping sides, in a temperature of over 90° and without water, the men soon became an absolutely unmanageable crowd who would not budge.

The reasons given by Burnside at the Court of Enquiry for his extraordinary conduct show a want of professional knowledge. It appears to have been his view that if he had made preparations for the passage of the attacking columns from the breastworks as ordered, they would have attracted the notice of the enemy and the troops would have suffered loss; and, further, that the abattis in his own front, which he considered the only serious obstacle, had been much damaged by the enemy's fire, and was therefore passable without preparation. He therefore took it on himself to omit from his orders all mention of making openings, &c.,⁴¹ preparations which capable engineers like Meade and Humphreys had known were absolutely essential to success.

From the evidence of other generals it is clear that Burnside's deliberate neglect of orders was disastrous. The troops could only get across the parapet in file in two or three places, and could not be guided as they dribbled to the front.

With regard to Burnside's insubordinate behaviour to General Meade, it must be stated that relations between them were already strained. As already mentioned, Burnside was senior to Meade, but had consented to serve under him. Meade's temper had, however, estranged most of his subordinates. It also appears that he had lost the confidence of his corps commanders as well as their good will, and so much was this the case that Grant had not long before thought he would have to relieve Meade, although he liked him personally, and get Hancock put in command of the Army of the Potomac.⁴²

As regards General Warren, that general stated before the Court that he never saw reasons why an assault should succeed. He admitted that he wasted much time consulting Burnside, writing despatches, waiting for answers, &c., and that, as he had only been told to support the 9th Corps, and did not get a direct order to attack, he waited to see if anyone would give him such an order.⁴³

The Court made no comment regarding Warren, but his frame of mind should be noted, as it explains some subsequent events. General Burnside, it may be mentioned, proceeded on leave and did

⁴¹ 80. W.R., 68, 69. In this connection it is interesting to recall the British experiences at the assault on the Redan, 8th September, 1855.

⁴² 80. W.R., 35, 36.

⁴³ 80. W.R., 78, 81.

not resume command of his Corps, which passed under the orders of General Parke. Burnside's great personal popularity had not improbably largely influenced his selection for high command early in the War. He had fought all through it, but at Antietam, Fredericksburg and finally Petersburg he signally failed to show himself equal to his position.

THE ENGINEER OPERATIONS.

Before leaving the subject of perhaps the most remarkable military mine ever fired, it must be remarked that the operations of Grant's armies were doubtless affected by the dearth of competent engineer officers. The need for trained officers had caused most of the Regular engineers to be taken for army appointments, and far too few were left for the special work of the Engineer Corps. We read, indeed, in the War Records frequent requests by corps commanders for more engineer officers, of there being no one who could properly reconnoitre the enemy's works, &c.

The operations of the Federals before Petersburg are marked by the absence of the usual devices of siege craft—other than the construction of one or two long continuous parallels with the necessary approaches and numerous redoubts.

With the exception of the mine, the offensive expedients usual in siege attack were strangely wanting. In fact, the Federal trenches in front of Petersburg were little more than lines of contravallation.

On the side of the Confederates, evidence is, however, to be found of the technical knowledge of military engineering possessed by Generals Lee and Beauregard. The expedients of the defence, such as countermining, retrenchments, &c., were skilfully employed by them.

It was indeed the unorthodox line of approach adopted for the Federal mine that prevented its detection from the Confederate listening galleries. Not dreaming that a mine would be driven into a re-entering angle, the Confederates started their counter mines from true salients. The Federal mine thus passed between the listening galleries at so great a distance, that not only was the Federal mining undetected, but the defenders' works below ground were hardly injured by the explosion of so huge a charge as 4 tons of powder.⁴⁴ Hardly were the assailants dislodged from the crater before the engineers of the defence were busy digging in it to find the main gallery, in order to use it for their own purposes.⁴⁵ They failed to find it, but continued their countermining in other places and, as an

⁴⁴ A Confederate sergeant, who was in No. 1 gallery at the time of the explosion, reports that he was thrown to the ground and that the gallery heaved and waved, but that the gallery and shaft were uninjured, although the line of works above ground between shafts 1 and 2 was mostly destroyed.—82. W.R., 820.

⁴⁵ 88. W.R., 1160.

experiment, exploded a small mine on the 5th August, which caused considerable consternation.⁴⁶ Beauregard attempted to renew the scare some weeks later by sending fictitious messages with regard to an imaginary mine. These messages were quite correctly deciphered by the observant signallers of the enemy, who constantly read off their opponent's communications. The Federal commanders were, however, too astute to be taken in by the hoax, cleverly planned though it was, as they suspected that it was intended to make them withdraw troops from their left.⁴⁷ As regards the Federal mine itself, it is strange that Meade and Humphreys took so little interest in its construction and possibilities. As, however, Major Duane, Meade's chief engineer, was against it from the first on account of its site, Colonel Pleasants was apparently allowed to work without military direction. From his report it appears that the work was most skilfully executed under great difficulties, but Colonel Pleasants was probably unaware of the military disadvantages of the excessive size and depth of the charge.⁴⁸ As a terrific explosion the famous Petersburg mine was certainly a huge success, but as a military operation it was, to quote Grant's words, "a stupendous failure."

GRANT'S FRESH PLANS.

A great opportunity had indeed been lost, but we now have a striking proof of one of Grant's great qualities as a commander, for no sooner was failure evident than that imperturbable general at once directed Meade to send a corps of infantry and the whole of the cavalry to destroy the Weldon Railroad, before Lee could bring his troops back across the James.⁴⁹ But that very afternoon Grant received the disquieting news of Early's movements in the Valley. This caused Grant to rescind his orders to Meade and as quickly as possible to despatch Sheridan and two cavalry divisions by sea to Washington.

On the 4th August Grant himself left to give final instructions to Sheridan, whom he had placed in chief command of operations in the Shenandoah.

Returning to his headquarters at City Point on the 8th August,⁵⁰

⁴⁶ 80. W.R., 50-3, 63, 64, etc., 101, 114. ⁴⁷ 80. W.R., 468, 511, 518, 1202.

⁴⁸ 5. M.H., 226-7. 80. W.R., 556-563. ⁴⁹ 2. G.M., 315.

⁵⁰ Grant narrowly escaped injury from the explosion on the 9th of an ordnance barge at a wharf adjoining his headquarters. Some of his staff were wounded, and over forty persons lost their lives, while treble that number were injured. If the report given in 87. W.R., 954-5 is trustworthy, the explosion was caused by an infernal machine containing twelve pounds of powder, which is described as a "horological torpedo." This was introduced on board the barge by one John Maxwell, a Confederate secret service agent, apparently deputed by the Southern authorities to destroy shipping on the James River. The Federals did not discover, or even suspect, the cause of the explosion till June, 1865.—97. W.R., 1250.

Grant soon planned a movement to threaten Richmond in order to prevent Lee detaching troops to reinforce Early in the Valley, and, if possible, make him recall some of those which Grant erroneously supposed to have been sent there. Grant expected, too, to make a serious impression on Lee's left and open the way for the Federal cavalry to dash on Richmond and the northern railways.

THE SECOND DEEP BOTTOM EXPEDITION.

Every effort was made to deceive Lee. The 2nd Corps, under Hancock, was marched to City Point and embarked on steamers to create the impression that it too was being despatched to Washington. It was then conveyed during the night to the lower pontoon bridge at Deep Bottom, and disembarked there on the morning of the 14th August, thus coming into line with part of the 10th Corps already across the river.

As a surprise this movement was a failure owing to the delays that attended the disembarkation of the 2nd Corps.

Butler attributes the delay to dilatoriness on the part of Hancock, and says that the expedition was very well planned, but this does not appear to have been the case.⁵¹

The account given by the historian of the 2nd Corps is instructive, and is here quoted without comment,⁵² as it speaks for itself and is borne out by General Hancock's official report (87 W.R., 216 et seq.) :—

"The general object of the expedition was nearly the same as that of the expedition of July; but the method of proceeding was changed. It would be difficult to say that it was thereby improved. The corps was to proceed to City Point and there take steamers, to create the impression on the part of the Confederates, who were certain to learn of the movement, that it was bound for Washington, to resist Early. Under cover of night, however, the steamers were to run up the James, 16 miles, to Deep Bottom; gang planks were to be thrown out, and the troops, rapidly debarking, were to press up the several roads to Richmond, turn the enemy's line on Bailey's Creek, and push forward to the Confederate capital. It is hard to believe that such a scheme could have been seriously considered before adoption. It is only to be explained by supposing that those who conceived it were familiar with the operation of landing men, cattle and goods from light-draught steamers, on western rivers. Large coastwise steamers, on a tidal river, however, were certain to offer a very different problem. Sixteen vessels, ocean-going or large river steamers, some of them drawing as much as 13 feet, were provided for the expedition.

"The corps marched at noon of the 12th August, bivouacked at City Point, and at noon of the 13th commenced embarkation.

⁵¹ B.B., 718.

⁵² W.H., 569-70.

Meanwhile, General Hancock, who, having had extensive quartermaster's experience in the old army, was very sceptical as to the 'gang-plank' feature, took a tug and, with General Ingalls, proceeded to Deep Bottom. Here it was found that the nature of the banks and the state of the water would not allow most, if any, of the vessels to land men over a gang plank. The ruins of three wharves were found, which could easily have been repaired with a little previous notice. Having ascertained the facts of the case, Hancock proceeded to City Point, and then sent up a tugload of lumber, with one of his own staff, charging that officer to put the wharves in as good condition as might be in the brief space remaining.

"Midnight had been fixed for the departure; but, on General Hancock's recommendation, the hour was changed to 10 p.m. The night being dark, constant showing of lights and blowing of whistles had to be resorted to in order to prevent collision in the narrow stream.

"It was 2.30 a.m. when the debarkation began. The men had been crowded very closely in the boats, and in getting off much delay was occasioned by the tedious filing down the narrow stairways between decks. There being but three wharves, steamers had to wait for others to unload. Some of the vessels drew so much water that they could not get up to the wharves at all, but were obliged to unload across others; while the largest steamer, containing a brigade, grounded in the stream and remained there for several hours.

"But while the 2nd Corps was the body of troops charged with effecting, by the foregoing elaborate operation, a surprise of the enemy at Deep Bottom, it was not to act alone. General Gregg's division of cavalry had moved by way of Point of Rocks and Bermuda Hundred, followed by the artillery and trains, and Birney's 10th Corps, at or near Deep Bottom, was also placed under Hancock's command."

It is unnecessary to follow these operations in detail, but it may be stated that the Federals on the 14th and 15th were incessantly engaged in thick woods trying to work round the enemy's flank and pierce his lines. Lee, however, had reinforced his two divisions entrenched north of the James by one infantry division and two cavalry divisions, and his troops offered a strong resistance.

Two of the most distinguished brigades of the 2nd Federal Corps were reported by their divisional commander as having behaved without any spirit, and one to have shown signs of demoralization. Facts attributed in the corps' history to the terrible losses suffered during the campaign and to the exhausting heat of the weather.⁵³

The Federals gained for a time some local successes on the 16th, but made no real headway, though the 2nd Corps was kept north of

⁵³ W.H., 574.

the James till the 20th. Lee, however, sent back one infantry division and one cavalry division to Petersburg on the 19th.

In these operations the Federals lost nearly 2,800 men.

MOVEMENT AGAINST THE WELDON RAILROAD.

While Hancock was keeping the enemy occupied across the James, the 5th Corps had been released from the trenches, and with it Warren was despatched on the 18th August for Globe Tavern on the Weldon Railroad but was checked by two brigades sent by Beauregard. On the 19th the 9th Corps was despatched to Warren's assistance and placed under his orders, but the 5th Corps was driven back by Hill with five brigades till two divisions of the 9th Corps arrived.

On the 20th Warren took up a position 1 mile in rear of his former one near the railway. Lee was, however, unwilling to relinquish the railway without a further struggle, and on the following day A. P. Hill, reinforced by parts of two divisions, attacked Warren, but was repulsed with heavy casualties, including over 500 prisoners.

The Federals lost 4,278 men in these operations, of whom some 3,000 were taken prisoners, but they were able to extend their lines to Warren's position. This expedition, costly and far from glorious though it had been, gave the Federals command of the Weldon Railroad, a hold which they henceforward retained.

The Confederates could, however, use that line to within a day's march of Petersburg; and, in order to force their supply wagons to make a detour of 30 miles viâ Dinwiddie Court House, Grant on 22nd August despatched Hancock with two divisions of his own corps and a cavalry division to destroy the railway further south.

The movement to Deep Bottom and the return to Petersburg had entailed excessive physical exertions on the troops. On the 14th August the 2nd Corps is said to have literally marched between men lying on both sides of the road dead from the effects of the heat and fatigue. In two weak regiments 104 men were struck down by sunstroke on that day. On the 17th, General Barlow, exhausted by his exertions and previous wounds, had to hand over command of the 1st Division to General Nelson Miles. The roads were in a terrible state even for Virginia, and the 1st and 2nd Divisions, marching day and night, only arrived before Petersburg after daylight on the 22nd. Allowed only a short halt to make coffee, they were set in motion again, and did not reach Warren's position near the railway till late in the afternoon. Here they bivouacked in pouring rain. At noon on the 23rd the 1st Division commenced tearing up the railway southwards, reaching Reams' Station, 5 miles off, in the evening.

REAMS' STATION.

On the 24th, after destroying another 3 miles of track, Miles brought his division back to Reams Station, where it was joined by

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Hancock with the 2nd Division (Gibbon's), and the whole force took up position in some old entrenchments, covered by the Cavalry Division, which, since the 23rd, had been skirmishing with the Confederate cavalry some miles to the west. Hampton, in command of the latter, had by this time ascertained the isolated position of Hancock's force and sent word to Lee, recommending the despatch of a strong infantry force to cut it off. Lee, on receipt of this message, was at first averse to sending his infantry so far afield as Reams' Station, but soon after despatched Hill with four brigades from different divisions, and this force bivouacked some few miles west of Reams' Station on the 24th. Hill was here reinforced by four more brigades the next day. His total force appears to have been 13,000 infantry and over 3,000 cavalry, under Hampton. Hancock had about half that number of infantry and 2,000 cavalry, under Gregg.⁵⁴

Meade warned Hancock late on the night of the 24th that 8,000 or 10,000 hostile infantry had been seen by his signal officers moving south by the Halifax and Vaughan roads, but he did not modify his former instructions, and Hancock was not a man to fall back without orders.

The 25th August was a disastrous day for the 2nd Corps. Before the work of destroying the railway could be resumed, the enemy was met advancing in force from the south. These troops were Hampton's two cavalry divisions, less one brigade, who, fighting on foot, pressed on and round Hancock's left.

By 10 a.m. Hancock's command was concentrated in the entrenchments, with Gregg's cavalry dismounted in support on his left.

The story of the 25th August cannot be understood without some further description of this unfortunate line of works. Their general plan is indicated on the map, and the following explanation is extracted from the history of the 2nd Corps⁵⁵ :—

"It will be seen that only a short face was presented to the enemy, and that both sides of the works, as drawn back on the right and on the left, were exposed to an enfilading fire. Moreover, the distance across, from one side to the other, was so short that the enemy's artillery on either side could make the opposite line untenable, and the spectacle was more than once presented, on the 25th, of a brigade abandoning the inside of the works to seek refuge upon the outside. But the worst feature was that the front of the works extended beyond the railroad. The two batteries and the few small battalions which were to receive here the assault of Lee's veteran brigades found themselves with a low parapet in front, while behind them, at a distance perhaps of 20 or 30 yards, and in the main parallel, ran the railroad, forming here an embankment and there a cut, which made it impossible for ammunition or reserves to be brought up, except at

⁵⁴ 5. M.H., 298-9.

⁵⁵ W.H., 582.

disadvantage, or for troops to retire without exposure to observation and to fire."

By noon General A. P. Hill arrived from the west, opposite the Federal entrenchments, with four infantry brigades and one cavalry brigade, and, sending McGowan's brigade to join Hampton on the south-east face, commenced deploying his command for an attack against the north-west angle. Incapacitated by heat and illness, Hill had, however, to temporarily hand over command to General Cadmus Wilcox.

At about 2 o'clock, Wilcox began his attack, while Hampton and McGowan made active demonstrations on their side.

By 2.45 p.m. the Confederate attack, though pressed well home, was repulsed, and Hancock reported the fact by field telegraph to General Meade, who, since the forenoon, had been at Warren's headquarters about 5 miles to the north. At 1 p.m. Meade had sent a message to Hancock giving him the option of retiring on Warren, if he thought fit, and added that he had sent orders for Mott's division of the 2nd Corps, which had been left in the Petersburg lines, to rejoin Hancock at Reams' Station by the Jerusalem Plank Road.

On receipt of Hancock's telegram, Meade sent another staff officer to Hancock (for some reason Meade did not use the field telegraph all day⁵⁶) with a message that he feared the enemy might interpose between Hancock and Warren, and that he had therefore ordered O. B. Wilcox's division of the 9th Corps from near Globe Tavern to the point on the Jerusalem Plank Road where the Reams' Station Road branches off, and that Hancock should call up that division if necessary.

In the meantime General Heth had arrived from Petersburg to reinforce Hill with four more brigades, and took over command of the Confederates from General Cadmus Wilcox about 3 p.m. After two hours' skirmishing, Heth, about 5.20 p.m., brought up eight guns against the north-west angle of Hancock's entrenchments, and at 5.40 p.m. a column of assault of four brigades, with two others in support, advanced under a heavy fire.

As the Confederates reached the entrenchments, five regiments of the 1st Federal Division broke or surrendered, and other troops brought up in support behaved in much the same way.

On the other side of the entrenchments Gibbon's division gave way before the attacks of Hampton and McGowan, and it was only the splendid behaviour of the artillery and Gregg's cavalry division fighting on foot, and the exertions of some of the infantry, rallied by the conspicuous gallantry of Generals Hancock, Miles, and other officers, that averted a complete rout. As it was, the rallied

⁵⁶ After his experience with Burnside on July 30th, Meade possibly did not care to trust to getting reports by the telegraph.

remnants of the 2nd Corps drove the Confederates out of parts of the lines and continued fighting till dark, when Hill withdrew with his prisoners and captured guns to Petersburg, leaving Hampton with the cavalry at Reams' Station. Hill's losses amounted to 720, but he had captured nine guns and some 2,000 prisoners and numerous colours.

The Federal losses in killed and wounded were only 610, but the proportion of officers was very large.

THE RECORD OF THE SECOND CORPS.

Hancock generously attributed the bad behaviour of some of his troops to their great fatigue and heavy losses during the campaign, especially in officers. Much may indeed be excused them on these accounts.

The following figures will give some idea of the losses the corps had suffered :—

It crossed the Rapidan 3rd May, 1864, just under 29,000 strong, and had received since then large reinforcements, but had lost by expiring enlistments all that remained of more than 20 veteran regiments of infantry. Their places had been taken by recruits, whether volunteer, drafted, or substitute.

There had been reported killed, wounded, and missing in action up to and including 31st July, *i.e.*, in three months, the enormous total of 20,283—including 25 brigade commanders and over 125 regimental commanders, but the corps had captured more guns and colours than all the rest of the army combined.⁵⁷

In the 2nd Division of the corps, which started 6,799 strong and had received 4,263, a total of 11,062, there had fallen between the same dates 5,075 killed and wounded. Of the 279 officers killed and wounded, 40 were regimental commanders. During the same period its four brigades had had 17 different commanders, of whom 3 had been killed and 6 wounded.⁵⁸

The loss of so many of its best and bravest officers and men could not but have profoundly affected the *moral* of this renowned corps, in spite of its fine traditions.⁵⁹

MEADE'S GENERALSHIP ON 25TH AUGUST.

Humphreys, Chief of Staff in the Army of the Potomac, remarks that the extent of the injurious effect of the large number of raw recruits recently received had not been anticipated, or reinforcements would have been sent to General Hancock early in the morning.⁶⁰

⁵⁷ 5. M.H., 303-4. 88. W.R., 1071.

⁵⁸ H.V.C., 265.

⁵⁹ Prior to the 1864 Campaign, the 2nd Corps had lost over 25,000 men in action, but never a gun or colour.—88. W.R., 1071.

⁶⁰ H.V.C., 283.

Army headquarters were, moreover, strangely ignorant of Hancock's numbers on the 25th August, for the next day Meade stated that Hancock had had from 16,000 to 20,000 troops under his command, *i.e.*, about double the actual number.⁶¹

Neither Mott's nor Wilcox's divisions reached Hancock. Both had 10 or 12 miles to march, and did not get their orders till the afternoon.

Had Wilcox's division been sent by the Halifax Road, which was the direct route along the railway, the distance was 5 miles only, and Wilcox could hardly have failed to reach Hancock by 4.30 or 5 p.m. and to take a part of the enemy in flank or rear.

Meade, in a kindly and consolatory despatch⁶² written to Hancock at 11 p.m., states that, if he had had any doubt of Hancock's ability to hold his lines against a direct attack, he would have sent Wilcox with others down the railway, but that his anxiety was lest the enemy should move round Hancock's left or interpose between him and Warren. To meet the first contingency he had, he said, sent Wilcox down the Jerusalem Plank Road, and for the second had held one division of the 5th Corps and another of the 9th Corps ready to move and attack.

This was because he feared the enemy might leave Hancock and attack Warren, so he wished to leave Warren some reserves till the last moment.

To avoid defeat was then Meade's motive, but the possibility of winning a victory by taking the initiative with his superior numbers does not appear to have entered into his calculations. The detours which he ordered were evidently for the purpose of safety, but what risk could have been incurred by sending a couple of divisions down the Halifax Road it is difficult to conceive.

On the 26th August the 2nd Corps, shattered for a time by this affair, and with many regiments commanded by captains and even subalterns, was withdrawn to its old position before Petersburg.

The Federal lines south of the Appomattox, extending from it to the Weldon Railroad, were now held by the corps in the following order—18th, 2nd, 9th, 5th—while the cavalry held a line of pickets a mile or two in rear facing south.

EVENTS IN SEPTEMBER.

But little occurred before Petersburg during the next month to relieve the monotony of a sedentary siege, except a daring cattle raid by the Confederate cavalry on 16th September. Passing by the west and south completely round the Federal lines, a large force of cavalry under Wade Hampton, pierced the Federal cavalry picket line on the eastern flank, and, with the aid of a large number of dogs

⁶¹ 5. M.H., 298.

⁶² 88. W.R., 486.

which they had brought, rounded up the whole herd of beef cattle, some 2,500 head, which the Federals kept near Coggin's Point on the James. Though pursued by the Federal cavalry, Hampton again circled round the rear and left flank of the Army of the Potomac and got safely back to Petersburg with his booty.

The success of this raid was no doubt largely due to the detailed report made on the 5th September by a spy, who had evidently been sent out specially with a view to this enterprise, which was suggested by Lee himself.⁶³

From early in August the Southern horsemen had overrun the country south of Petersburg, and the Federal cavalry had great difficulty in maintaining their picket line covering the south of the Federal lines against the raids of the Confederate troopers.

It must, however, be remembered that the Federal cavalry were somewhat outnumbered since Sheridan's departure with two cavalry divisions; for Lee had only sent one cavalry division to reinforce Early in the Valley.

Grant explains the inactivity before Petersburg during September by his wish not to embarrass the Administration in the coming November Presidential election by any want of success or heavy losses at this time.⁶⁴

Events in the Shenandoah, however, caused him to change his policy.

Sheridan had defeated Early at Winchester on 19th September and at Fisher's Hill on the 22nd, and was following him up vigorously.

Grant thus describes the situation⁶⁴ :—

"Sheridan, in his pursuit, got beyond where he could hear of him in Washington, and the President became very much frightened about him. He was afraid that the hot pursuit had been a little like that of General Cass's was said to have been in one of our Indian wars, when he was an officer of the Army. Cass was pursuing the Indians so closely that the first thing he knew he found himself in their front, and the Indians were pursuing him.

"He was afraid that Sheridan was getting so far away reinforcements would be sent out from Richmond to enable Early to beat him. I replied to the President that I had taken steps to prevent Lee from sending reinforcements to Early, by attacking the former where he was."

FIRST COMBINED MOVEMENT AGAINST FLANKS.

Grant's dispositions were for Kautz's cavalry division and 14,000 men of the 10th and 18th Corps, carrying three days' rations and 60 rounds of ammunition on the person, to cross the James as secretly as possible on 28th September, and surprise and break through, or,

⁶³ 88. W.R., 1233-6.

⁶⁴ 2. G.M., 332.

at least, effect a lodgment in, the enemy's lines north of the James. These lines, it was found, now extended from near Chaffin's Bluff on the James right across the Peninsula to New Bridge on the Chickahominy.

In case the enemy weakened his right to meet the Federal advance north of the James, General Meade was to make a movement against the Southside Railway on the extreme left flank with Gregg's cavalry division and two divisions of the 5th Corps and two divisions of the 9th Corps, carrying four days' rations and 60 rounds of ammunition on the person.

The despatch of these lightly equipped forces brought on some severe fighting with heavy losses.

CAPTURE OF FORT HARRISON.

On the 29th September the 18th Corps, though it failed to surprise the enemy, carried Fort Harrison with a rush. This was an important work close to Chaffin's Bluff, but all the Federal assaults on Fort Gilmer, the key of this position, failed. Lee now brought six brigades and some odd regiments across the river. On the 30th September, Anderson assaulted Fort Harrison three times, but failed to recapture it; and the Federals connected the fort by entrenchments with the river at Dutch Gap, across which they were now busy digging a canal.

The Federal losses in this fighting were 2,272. Those of the Confederates were about 2,000.

General Butler had directed these Federal operations in person, having previously drawn up some very elaborate operation orders, which ran into eight pages of print.

These he gives *in extenso* in his book, with the remark that he proposes to submit them to military critics everywhere, and to allow his reputation as a general—which had been called in question—to stand or fall by them.⁶⁵

This being the case some comments are permissible. General Butler was an enthusiast for the negro soldier, who was not regarded with favour as a fighting man by other Federal generals, and he was determined to show in this expedition that the coloured troops of the Federal Army could fight well, and that their courage had been maligned.

To effect this chivalrous purpose he made some extraordinary dispositions, which under ordinary circumstances it is possible he might not have felt impelled to adopt. He took the coloured (3rd) division of the 18th Corps away from Ord and attached it to the 10th Corps, commanded by Birney (not one of his pet bugbears, a West Point man), who also had a negro brigade with him that day. He gave Birney some elaborate directions by which the 3rd Division

⁶⁵ B.B., 722-730.

of the 18th Corps was always to be kept on the left of the 10th Corps, so that when the two corps effected a junction, the negro division might be re-transferred to its own corps.

Butler had also evidently told Birney verbally that he intended to take personal command of this particular division himself. And certainly, according to his own account, he quite subordinated the general direction of the whole operations to the shepherding of this one division. He accordingly accompanied it, harangued the negro troops and launched them to the assault. In spite of one check, and the passage of many obstacles, they carried the work in their front with great determination with a loss of 543 killed and wounded, or a loss of over 18 per cent.

General Butler, with his aide-de-camp, then tried to make his way to the 18th Corps, but blundered into the enemy, and had to ride for his life under a heavy fire. He eventually reached Fort Harrison, which had just been captured, and there he found General Grant. The latter had evidently seen that no one was directing operations, and considering the left flank dangerously exposed, he was issuing orders himself with a view to retirement.

He heard what Butler had to report, congratulated him on his success, and then laughingly resigned command of Butler's troops and rode away.⁶⁶

Butler took a more hopeful view of the situation than Grant had done, and decided to hold on to what he had gained, and quite rightly; for the Confederates were never able to turn the Federals out of the works captured that day, although the left was enfiladed by the fire of the Southern gunboats.

Butler was very indignant with Humphreys for omitting all mention of him in the account of these operations given in Humphrey's book. This he imputes to West Point jealousy, but the reasons for Humphrey's reticence may have been that there was certainly a good deal in General Butler's leading that day which was open to criticism.

General Butler attributes the incomplete results of the day to unforeseen events, which interfered with the execution of his instructions. These he had issued to the two corps commanders only, as he wished them kept strictly confidential. But unfortunately General Ord, commanding 18th Corps, received a painful wound just after Fort Harrison was taken, and was carried some miles to the rear for treatment, without anyone thinking of handing over his copy of General Butler's instructions to Ord's successor.⁶⁷

In the 10th Corps these operation orders had been given to General Terry, as he was temporarily in command, General Birney being on the sick list. But the latter officer returned unexpectedly and took over command of the corps; and one is left to conclude that he was

⁶⁶ B.B., 736.⁶⁷ B.B., 734.

not able in the time available to master the lengthy disquisitions of the commanding general. It is only fair to mention that the coloured brigade with the 10th Corps showed the greatest possible gallantry in the assault on Fort Gilmer, the leading troops jumping into the deep ditch and climbing up to the parapet on each other's shoulders. These men, as Humphrey grimly remarks, were nearly all killed, for the Confederates gave but little quarter to negro soldiers.

PEEBLE'S FARM.

On the same day Grant ordered Meade to commence his movement, and Meade in two days' fighting, after reinforcement by a division from the 2nd Corps, succeeded in extending his lines 2 miles to the west to a point (Peeble's Farm) midway between the Weldon Railroad and the Boydton Plank Road.

Meade's losses amounted to just over 2,000 men, of whom, however, over 1,300 were missing; a fact for which the large amount of raw material in the ranks was accountable. General Parke, commanding 9th Corps, remarks with regard to this fighting that the drafted and substitute recruits were much inferior to those formerly obtained by volunteer enlistment.⁶⁸

OCTOBER MOVEMENTS.

During these operations the Federals made a good deal of ground on both flanks that they did not afterwards lose, but on the 7th October Kautz's cavalry division on the extreme right on the Darbytown Road was roughly handled.

Outflanked by two Confederate infantry divisions during the night, Kautz on falling back found his retreat intercepted by Gary's cavalry brigade, and only managed to get back to the Newmarket Road under cover of the 10th Corps with the loss of eight guns and nearly 300 men. An attack by the Southerners on the right of the 10th Corps was, however, unsuccessful.

On the 18th October, Butler made a reconnaissance in force on the Darbytown Road, but, essaying an assault on entrenchments with one brigade, was repulsed.

SECOND COMBINED MOVEMENT AGAINST FLANKS.

At the end of October Grant determined on another simultaneous movement on both flanks, with lightly equipped forces, very similar to that of the month before.

BOYDTON PLANK ROAD EXPEDITION.

On the 27th October, Meade was despatched with about 35,000 infantry of the 2nd, 5th and 9th Corps, carrying four days' rations,

⁶⁸ H.V.C., 292.

and Gregg's cavalry division 3,000 strong, to make another attempt to reach the Southside Railway.

The woods were extremely thick, mutual support was difficult, and Hancock, leading the advance, never got within 6 miles of the railroad owing to the constant counter attacks of the Confederates.

In the afternoon, Grant and Meade saw the attempt to reach the railway line was doomed to failure, and ordered Hancock to hold his position till morning, and then withdraw.

After the departure of the commanding generals, Hancock got involved in serious difficulties owing to a gap which had occurred between his corps and the supporting division of the 5th Corps.

The operations were complicated, and would take too long to narrate with any clearness, but a description of them can be found in "Humphrey's Virginia Campaign" and the "History of the 2nd Corps."

All that need here be noted is that the supporting division (Crawford) of the 5th Corps was ordered to advance through thick woods, with its right resting on a winding stream (Hatcher's Run). This caused constant changes of direction and much delay, and in addition a large affluent was mistaken for the main stream. The Confederate General, Heth, discovered the gap between the 5th and 2nd Corps, left his entrenchments and took the offensive against the latter. He sent a small party of skirmishers (about 75 men) to oppose Crawford's advance, upon which that general halted and entrenched himself.⁶⁹ Had Crawford pushed on, Heth said afterwards that Crawford would have turned his flank and caused him to fall back and evacuate his works across the stream. Crawford appears, however, to have acted on positive orders from Warren, who had not heard the firing of Hancock's engagement, and had gone off to seek orders from Meade.⁷⁰ Heth now moved on and attacked Hancock's corps in rear. That corps was now facing in several directions and heavily engaged, but after some hard fighting it drove back the Confederates, who had got in its rear, with considerable loss, and during the night Hancock successfully withdrew his corps from its precarious position.

The Federals lost about 2,000 men this day, of whom about one-third were taken prisoners.

ATTACK ON RICHMOND.

On the same day (27th October), General Butler made a futile attack on Richmond, north of the James, with parts of the 10th and 18th Corps.

The 10th Corps under Terry was intended to demonstrate on the Charles City and Darbytown Roads, while the 18th Corps under

⁶⁹ W.H., 636-7.

⁷⁰ 87. W.R., 441. H.V.C., 301.

Weitzel pushed through the White Oak Swamp to turn the enemy's left.

But, unfortunately for the Federals, General Longstreet had just returned to duty after about five months' absence, due to a severe wound received from his own men in the Wilderness, and was now in command of the troops north of the James and on the Bermuda Hundred front.

That experienced commander judged that the heavy skirmishing from the Newmarket Road to the Charles City Road was designed, because of its long continuance, not to precede an assault, but to cover an attempt to turn his left flank. Leaving only a few skirmishers in the works opposite the 10th Corps, he moved Hoke's and Field's divisions and Gary's cavalry along his entrenchments to the extreme left, between the Williamsburg and New Bridge Roads. In the afternoon Weitzel's assault was repulsed with heavy loss, while Gary's cavalry charged his right flank.

The Federals lost 1,100 men in this affair, while Longstreet's loss appears to have been under 100.⁷¹

CLOSING EVENTS OF 1864.

This double failure ended Grant's active operations against Richmond for 1864.

Fortunately for the Union cause, Sherman's conquest of Atlanta and Sheridan's dramatic victories in the Shenandoah had done much to attract popular attention from the want of success before Petersburg.

Lincoln was re-elected President in November by an overwhelming majority, and with his support Grant's eventual success was but a matter of time.

DUTCH GAP CANAL.

An account of the operations around Petersburg during 1864 would be incomplete without some further mention of the Dutch Gap Canal, although at the time this enterprise came to nothing.

At the end of July it occurred to General Butler that by cutting a canal through this neck—known as "Dutch Gap" from a similar scheme begun but abandoned by a German before the war—it would be possible for the Federal gunboats to get above Trent's Reach.⁷² This reach was now closed to the Northern gunboats by the Confederate battery of 19 heavy guns at its head and by the shallows, which it was impossible to dredge under fire. The Southerners had four ironclads on the river and, as the ground on the north bank above Dutch Gap was low, any Federal advance on the enemy's works on that side of the river was exposed to the enfilading fire of the naval guns.

⁷¹ H.V.C., 306.

⁷² 82. W.R., 570.

Grant approved of the idea of a canal, and work was begun early in August by large working parties of Butler's coloured regiments—a negro being worth three or four white men for spadework. This enterprise was soon reported to Lee, who was sorely puzzled as to the use the enemy would make of the canal, unless to turn Pickett's left or, by lowering the level of water in Trent's Reach, prevent its passage by the Confederate gunboats.⁷³ He established some mortar batteries on the opposite bank above the Gap at about 2,000 yards range. These shelled the working parties continually, but without much effect, as the Federals while at work were protected from direct view by the screen, 60 feet high, formed by the high ground on the north side of the neck. Although the loop formed by the river is here 5 miles in length, a cut of less than 500 feet was required. It was proposed to make a canal 16 feet deep, 60 feet wide at bottom, and 90 feet wide at water level through the neck, working from the south, partly by dredge but mostly by excavation, leaving a shield of earth 25 feet thick at water level and 12 inches only at top to be blown away by a mine charged with several tons of powder. The canal would then only require two or three nights' dredging to clear the sill and provide a navigable channel between 25 feet of water on each side.⁷⁴

The soil was exceptionally favourable for this work, and on Christmas day the mine was successfully exploded and 3 feet of water flowed over the sill. But here the project ended, for a new naval commander, who had just arrived, begged that it might not be completed.

As Butler pithily remarks, "Here was a situation; I had been trying to make an opening by which the dog could get at the fox and destroy him, and the dog begged of me that I would not, lest the fox should eat him up."

Consequently not another stroke of work was done on the canal, but after the war it was dredged out, and is now the main channel of commerce between Richmond and the outer world, while Trent's Reach has silted up. At the time, however, it was classed as "another of Butler's failures."

Retribution overtook the nervous commodore about a month later, for on the approach of three light draught Southern gunboats, he fled down river with his squadron in such dismay—although the gunboats never came below Trent's Reach—that he could not stop 5 minutes to have the draw in the Deep Bottom pontoon bridge opened. He accordingly broke through the bridge and did not stop running till he got to City Point. Unfortunately for him, the

⁷³ 88. W.R., 1172. Pickett's division still held the entrenchments which "bottled up" Butler (*see* p. 415 of October number).

⁷⁴ B.B., 744 et seq., in which are also some interesting photographs.

renowned Admiral Farragut had just arrived there to look into naval matters on the river, and the delinquent was speedily brought to trial and convicted of cowardice.

THE FORT FISHER FLASCO.

Another episode, which terminated General Butler's military career, viz., the explosion of the Fort Fisher powder ship on the 24th December, has sufficient connection with the siege of Petersburg to be worth a passing mention.

Fort Fisher was a Confederate fort at the mouth of the Cape Fear River in North Carolina. It protected the port of Wilmington, on which towards the end of the siege of Petersburg the Confederate forces covering Richmond became largely dependent for their supply of fresh meat.

North Carolina being in General Butler's Department, he evolved a plan for the reduction of Fort Fisher with the assistance of the Navy. He proposed that the fort should be wrecked by the explosion of a powder ship and afterwards captured by a combined naval and military assault. A full account of Butler's abortive attack will be found in his book. But even on his own showing it was a silly business, and reveals remarkable ideas on the part of all concerned as to the destructive power of explosives.

It is extraordinary that Butler's project of destroying a fort by exploding a powder vessel some hundreds of yards away should have been passed, as he states, by a committee of experts; when the engineer officer in charge of the operation evidently knew, as is shown from the examples quoted in his report, that the practical effect on the fort of such an explosion would be—as it was—*nil*.⁷⁵

Butler soon after was removed from his command at Grant's request, and was succeeded by General Ord in the command of the Army of the James.

Butler had been quite out of place in command of the Army of the James, and his departure removed a continual source of discord.

OBSERVATIONS.

Some general observations may here be made on the operations of the siege of Petersburg.

It will be noticed that, with the exception of the grand assault planned to follow the explosion of the mine, both sides had avoided the serious attack of strongly held positions. There had been no more of the general assaults "all along the line," which had been characteristic of the earlier part of the campaign. When brought up by a strongly entrenched position the Federals had sought a way round, and the operations had thus taken place on the flanks of the

⁷⁵ B.B., 800, 807. 87 W.R. 988-993.

fortified fronts; sometimes simultaneously on both flanks; at other times with a feint on one flank and a real attack on the other.

The extension of the Federal lines had been contested by Lee step by step in an active defence, in which he had frequently taken the offensive in the open.

The Federals had joined up each position, as it had been won, with their main lines, and the Confederates had similarly extended their defences, which consisted of a strong line of continuous parapet protected by obstacles.

Where the hostile lines were not within close rifle shot the Confederates' entrenched picket lines and rifle pits were established well to the front. The Confederates, in spite of their great inferiority in numbers and resources, had not only staved off defeat, but had achieved some remarkable successes.

To the popular mind in the North, the defeat of Lee seemed as far off as ever; in fact, the North had never been nearer abandonment of the contest than at the end of August. President Lincoln's re-election had, however, strengthened the national determination to continue the struggle till the South gave in.

Contested though the opinion may be by Northern writers, it does not appear possible to account for Lee's successful resistance except by the explanation that the Army of Northern Virginia maintained the moral superiority which it had established early in the war in the eastern theatre of operations. The Southern troops were still as ready as ever to face superior odds; while the Federal generals had not yet lost the fear of being outnumbered.

Without discussing how that moral superiority was first established—a subject dealt with at some length by Henderson⁷⁶—some observations will be offered regarding the causes which led to its maintenance.

Some may be disposed to attribute this to the prestige and superior generalship of Lee, and to ask what would have happened had the opposing generals changed sides at this period.

But in the opinion of the writer, the true explanation must be sought elsewhere, and the chief causes of the moral superiority of the Army of Northern Virginia at this period may more justly be traced to superior mobility, better marksmanship, and the confidence inspired by the mutual reliance and co-operation of the Southern generals.

As regards *mobility*—the Army of Northern Virginia, ragged, half-starved and ill-shod though it was, possessed greater rapidity of movement than the Army of the Potomac. Not only were the Confederates better marchers, but they were in their own country, knew what points to make for, and how best to get there. Even

⁷⁶ S.W., 197 et seq.

when Grant's soldiers had the start and were moving on interior lines, they failed to forestall their seemingly ubiquitous enemy.

In action the manœuvres of the Federals were sluggish compared with those of their opponents. The Union troops were also more easily checked, and in such circumstances showed a disposition to halt, entrench, and await the Southern attack.

The Union Army had received such repeated blows that it resembled a boxer who loses all form when he meets his match. Accustomed to and dazed by heavy punishment, the Army of the Potomac at this period seemed incapable of taking advantage of an opening.

As regards *marksmanship*—the Confederates were mostly veterans drawn from a class more accustomed to the use of firearms than many of the Northern troops, large numbers of whom had never fired a round until going into action.

For example, General Warren reports that of the 11,000 effective infantry of his corps engaged on the 27th October, nearly 4,000 had never fired a musket.⁷⁷ Similar reports from other generals could also be quoted.

Both sides had muzzle-loading rifles which shot with sufficient accuracy to make it dangerous for officers to expose themselves conspicuously at 500 or 600 yards. The Federal cavalry and also a certain number of the Northern infantry were, however, at this time armed with breech-loading and even repeating weapons. But, in spite of the superiority of the Northern firearms, the Confederate marksmen were particularly deadly, and, ensconced in trees or acting as skirmishers, caused heavy losses. Many were adepts in wood fighting, did not waste ammunition, and shot to kill and not to let off their piece.

Though there was little fire control according to the ideas of the present day, there are indications in the heavier losses of the Federals that the Confederate musketry was the more effective.

In artillery the Federals were, as always, superior.

As regards the *better co-operation* of the Southern generals—this does not appear to have been due to better staff work but to moral causes. Indeed there was little to choose between the excellent intelligence work on both sides, and the operation orders issued by the Federals are said to have been far superior to those of their opponents. But the Southern generals co-operated in action habitually and of their own accord; they were thus ever ready to seize an opportunity, and all were inspired by devotion to their chief.

On the Southern side one does not read of remarks like the following being made by one general of another during an engagement:—

“The same old story—X. has gone off and left me to fight alone.”⁷⁸

⁷⁷ H.V.C., 296.

⁷⁸ 6. M.H., 396.

“ He has got himself into a scrape; let him get out of it the best way he can.”⁷⁹

Nor is there anything to match the explanation alleged to have been given by a Federal general in high command for the casual orders he issued for an assault which failed and cost the army some 10,000 men—viz., that he was tired of seeing all the credit being given by the papers to his superior, and that he was determined to let the latter plan his own battles in future.⁸⁰

Looked at as a whole, the remarkable, but little studied, operations before Petersburg in 1864 have a good deal in common with other examples of prolonged struggles along an extended front which have occurred in recent wars.

It must be left to those who care to compare and contrast the conditions under which these campaigns have been fought to say whether some ideas might not have been taken with advantage from the operations between such generals as Grant and Lee.

Though many campaigns have been largely influenced by the personal characteristics of the commanders, in few campaigns is such influence more clearly traceable than in this; but the topic, interesting though it is, will not be enlarged on here. It may, however, be said, with small fear of contradiction, that the sinking fortunes of the Confederacy were long sustained as much by the noble character and personal qualities of Lee as by the masterly generalship which must always be connected with his name.

Grant's reputation as a general is no doubt to some extent overshadowed by that of his great opponent. But his operations before Petersburg were marked by both resource and skill as well as by his characteristic determination.

Although for a long time his efforts against Richmond did not command success, they deserved it on more than one occasion; and it must be remembered that in spite of his superior numbers he had to contend with great difficulties. He was at this time directing the operations of the vast forces of the Union scattered over an enormous theatre of war. Before his arrival in the Eastern field of operations, no one had been able to make much headway against the great Confederate leader. Although Lee had been repulsed more than once, he, till Grant appeared, was as formidable as ever; and as long as Lee remained uncrushed the fate of the Union cause still hung in the balance.

Though the enormous losses incurred by the Federals had staggered humanity, it must be recognised that Grant pressed Lee steadily back and deprived him of the striking power which for three years had made the Army of Northern Virginia a standing menace to the political capital of the North.

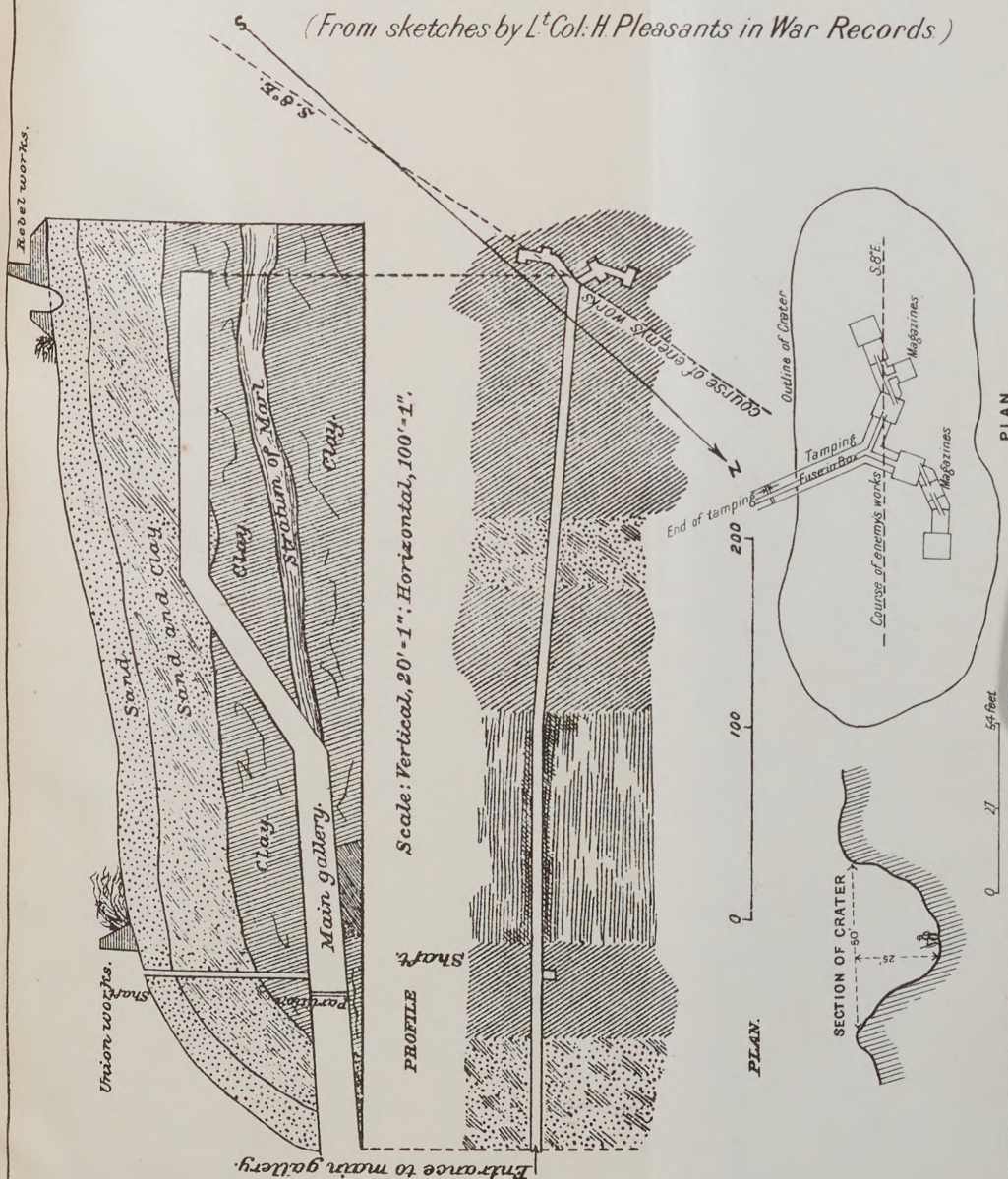
⁷⁹ B.B., 666.

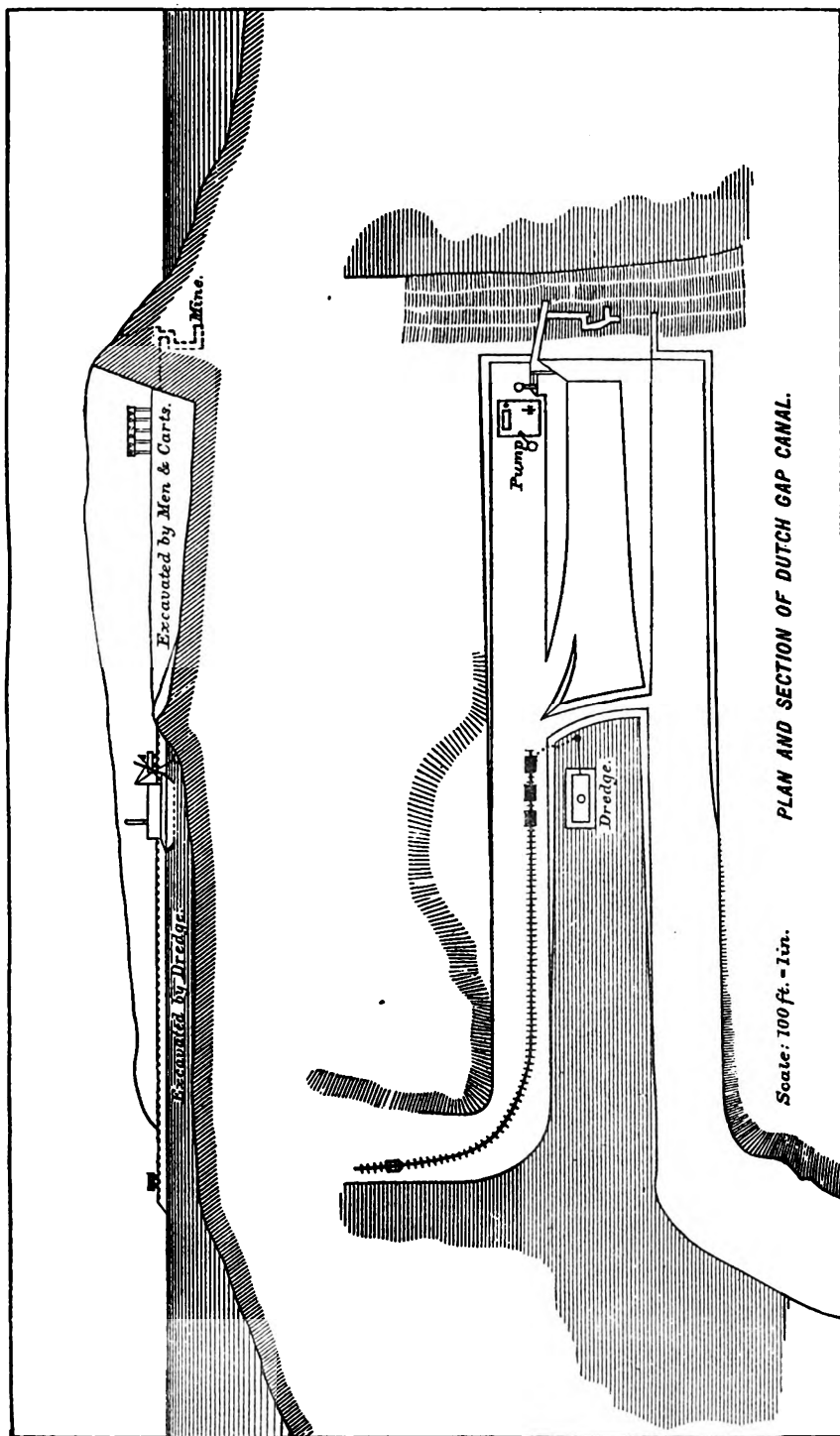
⁸⁰ 4. B.L., 228.

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THE PETERSBURG MINE

(From sketches by Lt Col: H Pleasants in War Records)





Reproduced from 87 MR 570.
War Office, Dec 1911.

While devising and directing the great combinations which gradually wore down the South, Grant rightly recognized that his own presence was necessary to carry through the operations against his chief antagonist; for it is more than doubtful whether any other Union general would have been equal to the task. But Grant's imperturbable spirit and unfailing good humour were proof against the many dissensions and difficulties with which he had to deal before Petersburg, and his very taciturnity inspired confidence in his leadership.

Abused by a large section of the Press and by many critics in the North, but secure in the support of the President, Grant hung on relentlessly and waited for the result which he foresaw was inevitable, if pursued with patience and determination. No sooner had one operation failed than he tried another; and it can hardly be admitted that he was wanting in resource.

It is true that in the operations just described Grant had failed to pierce Lee's front or actually to turn his flanks as he had intended; but with a force containing many elements of weakness he had pressed the Confederates hard and had forced them to extend their front to a dangerous extent, while he avoided the demoralizing losses which had marked the earlier part of the campaign.

The closing scenes of the struggle in 1865 are no less interesting than the earlier episodes, and supply perhaps the most instructive example on record of a retreat with a parallel pursuit.

APPENDIX I.

RECENT PUBLICATIONS OF MILITARY INTEREST.

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REVIEWS OF BOOKS.

ARTILLERY.

Gunnery Rules for Batteries (Light, Horse and Mountain), Armed with the 3-inch Q.F. Gun. 42 pp. 8vo. St. Petersburg, 1911. Alexandrov. (Правила стрѣлбы для батарей вооруженныхъ 3-дм. скорострѣльными пушками); and

Explanatory Notes to the above. 62 pp. 8vo. St. Petersburg, 1911. Alexandrov. (Объяснительная записка къ правиламъ стрѣлбы и.т.п.)

The Gunnery Rules, 1911, are a new edition of the Regulations contained in Part III of the Provisional Drill Regulations for the Russian Q.F. Artillery of 1904. They embody also the "Amendments to the Russian Gunnery Rules" of 1910.

The new manual contains instructions for the "new" practice with short fuze against hidden targets, and special attention is to be paid to the practice in order to arrive at an estimate of the battery commander's power to direct such fire, without the assistance of observers. An accurate record of hits is to be kept, in order to prevent officers entertaining an exaggerated idea of the efficiency of fire at hidden targets.

Additional subheads dealing with night firing and fire against aircraft have been introduced.

The "Explanatory Notes" amplify the "Gunnery Rules, 1911," and give numerous diagrams to illustrate methods of ranging and observation of fire.

A translation into German of both the above publications (less the diagrams and last four pages of the "Explanatory Notes") will be found in M.A.G., 1912, pages 127-155.

Artillery Regimental Exercises. (Les exercices de service en campagne dans le groupe de batteries.) By Lieutenant-Colonel Aubrat. 500 pp., with 97 illustrations and 1 map. 8vo. Paris, 1910. Berger-Levrault, 5, Rue des Beaux-Arts. 6s.

This is the third edition of Colonel Aubrat's well-known book. For the benefit of those officers who may not have seen the previous

editions, it may be stated that the book contains a large number of examples of artillery regimental exercises which are worked out in detail.

The subjects dealt with in the exercises include marches, billets, bivouacs, reconnaissance and occupation of positions, changes of position, study of various kinds of artillery fire, supply of ammunition, &c. The examples are all most realistic, and are so framed that in almost every situation there is work for N.C.O's as well as for officers.

The book contains a number of very clear sketches to illustrate the problems, which are all worked out in considerable detail, though the author is careful to warn his readers to bear in mind that almost every tactical problem may be solved in a number of different ways. The present edition has been brought into line with the latest French ideas regarding the employment of field artillery, and in view of the close resemblance between the French Artillery Regulations and our Field Artillery Training, 1912, Colonel Aubrat's book should prove of considerable value not only to our artillery officers, but to officers of other arms of the service.

Field Artillery. (*L'artillerie de campagne.*) By Major E. Buat, 25th Field Artillery Regiment. 347 pp. 8vo. Paris, 1911. Librairie Felix Alcan. 108, Boulevard Saint-Germain. 2s. 10d.

The author of this work disclaims any idea of writing a scientific treatise on the subject of artillery, and says that his intention is, on the contrary, to avoid scientific details as far as possible, and to present to his readers a popular account of the evolution of field artillery from early times up to the present day. He wishes also to give some idea of the characteristics of the artillery matériel used by France and other nations at the present day and also to indicate the methods of employing artillery now in vogue. The first part of the book (123 pp.) is devoted to an account of the evolution of the field gun from the 14th century up to 1897 and to a consideration of the changes which have taken place in artillery organization during that period. The second part of the book is more interesting than the first, and is divided into six chapters. Chapter 1 gives an excellent description (with drawings) of the present 75 millimetre French gun and of the various parts of its mechanism and of the appliances connected with it. Chapter 2 describes the different projectiles employed by the French artillery and their uses. Chapter 3 deals with the organization and tactics of a French battery. Chapter 4 contains notes on the composition and tactics of Corps artillery, and discusses various problems connected with ammunition supply. Chapter 5 deals with Army artillery as distinct from Corps artillery; while the last chapter describes briefly the field guns at present used by the various foreign Powers. The book is worth reading.

BOOKS OF REFERENCE.

British Expeditionary Force. Field States and other Data. By Major P. J. Preece, Post Office Rifles. 8vo. London, 1912. Harrison & Sons. 6d. net.

This pamphlet consists of a series of tables giving the detailed strength in men, horses and vehicles of a cavalry division and a division, as well as the road and camp spaces occupied by the various fractions composing them, and the rail accommodation they require. There are other tables showing the tools and explosives carried by units, with a good deal of other information which would be likely to be found useful at war games and Staff tours. The whole is arranged to fold into a small compass, and reference to any detail required is easy.

The Norwegian Army in 1911. (Норвежская Армия.) By Lieutenant-Colonel J. Svyechin and Captain Assanovich. 51 pp. 8vo. St. Petersburg, 1911. Staff of the Guards and St. Petersburg Military District Press. 4s. 7d.

The authors have compiled a concise account of the Norwegian Army, its uniform, equipment and tactics. Two useful appendices show the peace and war organization in diagrammatical form.

A distribution map is also given.

HISTORY.

Reminiscences of the War of the Rebellion. 1861-1865. By Colonel E. J. Copp. 536 pp., illustrations and portraits. 8vo. Nashua N.H., 1911. Telegraph Publishing Co.

These reminiscences were written by the author for the amusement and instruction of his two daughters. They contain, in consequence, a good many stories of life in the Federal Army, and details of drill, routine, organization and fighting formations not usually found in books on the Civil War.

Colonel Copp was 16 years of age and working in a book store when the war began. He enlisted in the 3rd New Hampshire Volunteers on President Lincoln's call for troops after the first battle of Bull Run. He was engaged in Sherman's expedition to Port Royal, the capture of Fort Pulaski, the James Island campaign, the battle of Secessionville, the capture of Morris Island, and the siege of Charleston, and finally took part, in the Army of the James, in Grant's operations round Petersburg. After less than two years' service he obtained a commission. He was twice wounded, at Drury's Bluff and at Deep Bottom.

Rations naturally come in for some attention in the narrative. They consisted of "coffee and hard tack and salt pork always, and when possible baked beans." The beans, however, took "several hours, sometimes all night, until thoroughly cooked," and so were not issued when troops were marching. Every man carried three days'

rations in his haversack. The pork was cooked thus :—"Cut a stick, whittle it to a point, put on a piece of pork and broil it over a fire." Beef when obtainable was cooked in the same manner, but "some of the boys would carry along a frying pan, and with this they could furnish themselves with genuine luxuries in the way of cooking."

The "Long Roll," a term which has recently come to the notice of English readers as the title of a novel on the war by the niece of General Joseph E. Johnston, is described as "the signal for every man to turn out with his rifle and cartridge box and get into line in the shortest possible time."

Of the transport system Colonel Copp writes as follows :—"Army discipline and system were most rigidly enforced in the Quartermaster's department. It was only by the most systematic rules and rigidly-enforced orders that it was possible to move the army trains in the field. On each wagon was the Corps badge, with the division colour and number of the brigade, so that it could be seen at a glance whether or not the wagon was in its place; the contents also of each wagon were plainly marked, whether ammunition for artillery or infantry; if for rations it was so marked, and what the wagon contained—bread, pork, beans, coffee, sugar."

Colonel Copp believes it "to be a great injustice to hold General Butler responsible for the failure to capture Petersburg" (after his landing in Bermuda Hundred), and attributes his ill success to the incapacity of the Corps commanders. But in his next sentence he provides an equally probable cause. "The line of battle is in two ranks, but practically when once under fire, the ranks would break up. Each man, while keeping near his place, would take advantage of any stump or uneven ground." Lack of discipline in the men and lack of training in the officers were the causes of most of the Federal failures.

British Battles—Waterloo. By Hilaire Belloc. 206 pp. 8vo. London, 1912. Stephen Swift & Co. 1s. net.

This is the third of the series of monographs dealing with British battles, which Mr. Belloc is engaged in writing. The account of the four eventful days, into which the campaign of Waterloo was compressed, is given in the same clear and concise manner as distinguished those of Blenheim and Malplaquet, which have already appeared.

No attempt is made to enter into details which might obscure the main facts of each day's events, nor does the size of the book admit of more than a very brief examination of those points on which interest and enquiry have chiefly centred.

In reading this book the two features which strike one most are firstly the emphasis laid on the events of the 16th June, which the author truly describes as the decisive day of the campaign; and secondly, the many excellent little sketches, a good example of which is the one that shows the positions of the various divisions of the Anglo-Belgian Army as Wellington imagined them on the 16th June and as they really were.

The Napoleonic Campaign of 1805. By Captain F. W. O. Maycock, D.S.O., the Suffolk Regiment. 106 pp. 8vo. Aldershot, 1912. Gale & Polden. 3s. 6d. net.

In his preface the author of this book states that he has compiled his account of the campaign from various authentic sources in the hope that it may be of use to officers reading for promotion examinations. No attempt is made to deal with the tactics of the principal actions, but to those who only require a superficial knowledge of the campaign in question this little volume may prove useful. Several clear maps are included, which are not, however, very conveniently placed for reference.

General Joseph Wheeler and the Army of Tennessee. By J. W. Du Bose. 475 pp. and 7 portraits. 8vo. New York, 1912. Neale Publishing Co. 12s. 6d.

This book is not a formal biography of General Wheeler. After an introduction entitled "Background," which gives an account of the origin of the Civil War from a thoroughly Southern point of view, the operations of the Army of Tennessee are briefly described and the special part played in each by General Wheeler is then narrated, mainly in the language of his own reports.

General Wheeler was educated at West Point and received his commission in the cavalry in 1858, in the regiment of which J. E. B. Stuart was Quartermaster. His college nickname was "Point," the explanation being that "he had neither length, breadth, nor thickness :"—on joining the army he was only 5 feet 2 inches in height and weighed only just over 7 stone.

When his State seceded, Second Lieutenant Wheeler resigned his Federal commission, and was appointed first lieutenant of artillery in the Confederate Regular Army. He shortly after wrote an application to the Secretary of War in these terms :—"I have the honour to apply for increased rank in the army." Thanks to influential support he was made colonel of the 19th Alabama Infantry. He commanded this regiment with conspicuous success at the battle of Shiloh.

In July, 1862, General Bragg appointed him commander of a cavalry brigade. In this capacity he particularly distinguished himself at the battle of Perryville. In October, 1862, he was appointed "Chief of Cavalry" of Bragg's department. He served in this post in all Bragg's campaigns and continued in it when General J. E. Johnston took over command from Bragg. When Hood superseded Johnston he sent Wheeler with 4,000 cavalry on the useless raid on Sherman's communications, thus depriving himself of the eyes and ears of his army.

After this Wheeler never rejoined the Army of the Tennessee. With 3,500 cavalry he hung on to Sherman during the latter's march through Georgia. He had parties moving a day or more in advance of the Federals to warn inhabitants of the enemy's approach and direct them to drive off their animals and destroy their stores. The remainder of his force, working in rear and on the flanks of Sherman's army,

cut off stragglers and ambushed foraging parties, accounting for more than their own numbers.

At the close of the war Wheeler and the remnant of his cavalry Corps refused to surrender, but were captured in bivouac in broad daylight by General Wilson.

When Wheeler took command of the cavalry brigade in July, 1862, "the arm was the double-barrel, muzzle-loading shot gun, brought by the men from home; . . . generally a leather strap suspended the shot gun, muzzle upward, around the soldier's neck and across one shoulder." As captures were made the original weapons were gradually exchanged for better ones, repeating carbines and infantry rifles. "Ammunition of any kind was always hard to get," and capture was the chief source of supply. Most of Wheeler's men fought on foot; "a few of the regiments when the war had well developed were armed only with pistols and sabres, and these were kept to assist, by the mounted charge, the dismounted fighters." Occasionally the men armed with carbines and rifles charged, "firing and reloading without dismounting."

The author dedicates his volume to the memory of General Joseph E. Johnston, of General Wheeler, and of his own four brothers, all of whom, with himself, served in Wheeler's Corps. Two of them were killed, and a third died in hospital.

Tirah, 1897. By Colonel C. E. Callwell. 164 pp., 5 maps and plans. 8vo. London, 1911. Constable. 5s.

This is one of the series of "Campaigns and their lessons;" it furnishes the classic example of operations by a disciplined army against irregular tribesmen in a mountainous country such as the North-West Frontier of India, and gives the practical soldier a well-arranged and concise account in outline of the 1897 operations in Tirah, and the lessons to be learnt from them.

The value of the principles inculcated is intensified to-day by the better armament of the tribes in question; the lessons and criticisms clearly placed before the reader enable him to form useful conclusions in amplification of the principles laid down in Part I of the Field Service Regulations.

The Moroccan Campaign of 1844. (*La campagne de 1844 au Maroc.*) By Captain Latreille, of the Historical Section of the French General Staff. 185 pp. and 5 maps. 8vo. Paris, 1912. Chapelot. 3s. 2d.

The publication of this book comes at an opportune moment. The process of transforming Morocco into a French protectorate will almost certainly give rise to fighting in that country; in these circumstances, a book describing the methods of that great African commander, Marshal Bugeaud, is particularly welcome.

The campaign of 1844 was undertaken in consequence of the retirement of Abd-el-Kader to Morocco, where he received a considerable measure of support. In the face of great difficulties, Marshal Bugeaud

organized an expedition against the Moors ; in the course of two months a decisive victory had been gained at Isly, Oudja had been occupied and Mogador captured.

The troops available were comparatively few—at Isly the French force totalled 10,000, and was opposed by an army of 40,000 Moors, 30,000 of whom were mounted. Such rapid and decisive results could only have been obtained by troops thoroughly matured to African warfare under a commander who knew how to maintain that personal ascendancy and influence over his men, which counts for so much in the French Army.

Army Life. A Private's Reminiscences of the Civil War. By Rev. Theodore Gerrish, late a member of the 20th Maine Volunteers. 327 pp. 8vo. Portland, 1882. Hoyt, Fogg & Donham.

The 20th Maine Regiment was enrolled at the time of Pope's defeat in the Second Manassas campaign and joined the Army of the Potomac before the battle of the Antietam. It remained in service with that army till the close of the war.

The author has unfortunately attempted to combine two objects, to give a picture of the war from a private soldier's standpoint and, at the same time, to write a regimental history. In his first object he is not unsuccessful, but his qualifications as a serious military historian may be gauged from his account of the battle of the Antietam. He begins by giving Lee an army of 100,000 men and ends by representing him as retreating across the Potomac under cover of an armistice granted that he might bury his dead. He fails to distinguish between A. P. Hill and D. H. Hill and attributes the former's attack upon Burnside to the latter, making the decisive movement come from the centre instead of the extreme right.

Memoirs of the War of Secession. From the original manuscripts of Johnson Hagood, Brigadier-General, C.S.A. 496 pp. 8vo. Columbia S.C., 1910. The State Co. 12s. 6d.

General Johnson Hagood, who came of an old South Carolinian family, was born in 1829 and graduated with the highest honours at the State Military Academy. In 1851 he was appointed a Divisional Adjutant-General of the State Militia, and in December, 1860, held the rank of Brigadier-General of Militia. On the outbreak of the war he was elected colonel of the 1st South Carolina Volunteers and was promoted brigadier-general in July, 1862. He was elected Governor of his State in 1880, and died in 1898, having been Chairman of the Board of Visitors of the State Military Academy since 1876.

After the war he compiled these memoirs, not with a view to publication, but that he might bequeath them to his son, who now has allowed them to be made known to the public.

A sound disciplinarian, always attentive to the physical welfare of his men and a tactician of marked ability, he represents the best type of militia officer trained in the military academies of the South.

For the first three years of the war he was employed on the South Carolina coast in the neighbourhood of Charleston. He bore a distinguished part in the battle of Secessionville on the 16th June, 1862, where he won his promotion, and in the defence of Fort Wagner in the summer of the following year. In September, 1863, Beauregard gave him a brigade and he served under that commander in his short but brilliant campaign against Butler. He and his brigade joined the Army of Northern Virginia in time to take part in the battle of Cold Harbour. Of this battle he records that though "situated near the centre of the line along which this murderous repulse was given, and awake and vigilant of the progress of events, he was not aware at the time of any serious assault having been given." His brigade was distinguished by its splendid but hopeless charge, ordered by A. P. Hill and Mahone, under a misapprehension, at the battle of Weldon Road on the 21st August. In the closing stages of the war he served under Hoke's command in the Wilmington campaign and under Joseph Johnston at Bentonville. In August, 1864, he was strongly recommended by Beauregard for further promotion. "Three months later he and many better men were overslaughed by the assignment to a division command in the Army of Northern Virginia of an officer who had never previously been in battle."

These memoirs will prove of considerable value to the historian, especially in connection with Gilmore's operations against Charleston. They are prefaced by a list of *errata*, which, though lengthy, is not exhaustive.

The Mississippi Valley, Tennessee, Georgia, Alabama, 1861-4. Papers of the Military Historical Society of Massachusetts. Vol. VIII. 619 pp., with 8 maps. 8vo. Boston, 1910. Military History Society of Massachusetts. 8s. 8d.

The contents of this volume will be somewhat of a disappointment to the reader. He will naturally expect from the title page some account of the Vicksburg campaign. But though two papers deal with the siege of Port Hudson and Banks' Red River Expedition, Grant's famous campaign is left severely alone. Moreover, a considerable part of the book is taken up with the Chattanooga campaign, which has already been dealt with in the preceding volume of the series.

General W. F. Smith vindicates at considerable length his claim to have been the author of the plan, by which "the short line" from Bridgeport to Chattanooga was opened in October, 1863, and his contention is supported as against Rosecrans' counterclaim by Colonel Livermore. Nearly a quarter of the volume is devoted to Colonel Henry Stone's account of the Atlanta campaign, who has again seized the opportunity to emphasize his hostility to General Sherman and the Army of the Tennessee.

The most interesting article is a very masterly, though adverse, criticism of Buell's campaign against Chattanooga in 1862, from the

pen of Lieutenant-Colonel Bruce. He shows that the Nashville and Decatur and the Nashville and Chattanooga railways were just as much parallel to the front of Kirby Smith's line in East Tennessee, as was the Memphis and Charleston railway to Bragg's line in Alabama, and that consequently the charge brought against Halleck of hampering Buell's campaign by insisting upon the use of the last named railway as his line of communications is without foundation.

The Campaign of Gettysburg. By "Miles." 202 pp., with 3 maps. 8vo. London, 1911. Forster Groom & Co., Ltd. 7s. 6d.

Much credit is due to the author, who is understood to be an officer of the Royal Engineers, for his clear and instructive account of this campaign. It is open, however, to the criticism that for the sake of clearness the controversial points, with which the campaign bristles, are too easily dismissed.

In the opening chapter the author makes no allusion to the alternative strategy, which would have sent Longstreet westwards for a movement to the banks of the Ohio. If that course had been adopted in May, Grant might have been forced to abandon his campaign against Vicksburg. Lee's invasion of Pennsylvania at the end of June came too late to exercise any influence upon the course of events in the Mississippi Valley.

"Miles" seems to have handled his authorities on somewhat eclectic principles. For the battle of the 1st July he frequently cites Doubleday's volume in the Scribner series. Yet in his review of that engagement he lays the chief responsibility for the Federal defeat upon Doubleday, a view evidently shared by Meade. It might therefore have occurred to him that Doubleday's version was rather likely to be of the nature of special pleading. Similarly in his account of the artillery duel, which preceded Pickett's charge of the 3rd July, after several quotations from Alexander, Longstreet's Chief of Artillery, he suddenly throws that officer over altogether and states that the artillery combat lasted without a break for nearly two hours, though Alexander's account makes it of considerably shorter duration. Nor has he apparently felt it necessary to attempt to reconcile the discrepancies existing in Lee's two reports of the campaign.

Had he consulted Alexander's "Military Memoirs of a Confederate," he would perhaps have modified the statement (p. 155) that "the salient at Cemetery Hill could not be enfiladed from either side, whilst the hill was itself so strong that there was no fear of its being captured, if held by good troops." For Alexander insists that this salient "offered the only hopeful point of attack upon the enemy's entire line," and again "it must ever remain a grave reflection upon the Confederate conduct of the battle that the weakest part of the Federal position was the only portion which was not attacked."

The view that Stuart was completely successful in his object, whilst fighting with Pleasanton in the Bull Run Mountains, seems hardly tenable. For it was due, in part at any rate, to Pleasanton's success

that Hooker was enabled to cross the Potomac without Lee's knowledge. The writer also gives the Confederate President more credit than he deserves for the assistance which he rendered to Lee in this campaign. It is difficult to believe that Jefferson Davis regarded the invasion of Pennsylvania in any other light than as a gigantic raid for the purpose of relieving the Commissariat Department at Richmond.

The statement on p. 16 that the Potomac below Harper's Ferry was unfordable needs considerable qualification. How did Lee cross the river in the previous summer? On p. 78 Rock Creek is spoken of as 6 inches deep. "Inches" should be altered into "feet."

It has often been pointed out that, although popular and military interest in the battle of Gettysburg is now very great, no complete account of it has yet been written. The volume under review goes a considerable way to supply the want.

Southern Historical Society Papers. Vol. XXXVIII. 390 pp. 8vo. Richmond, Va., 1910. Southern Historical Society. 12s. 6d.

This volume is hardly as interesting as many of its predecessors. Nearly one-third of it is taken up with the official correspondence leading to the restoration of Jefferson Davis' name to the Cabin John Bridge at Washington, which was effected in 1909. To English readers the most interesting paper will be a very appreciative review of Lieutenant-Colonel Henderson's biography of Stonewall Jackson, contributed by Captain Randolph Barton, A.A.G., of the Stonewall Brigade. The writer was a cadet at Lexington under Jackson, and his reminiscences of those early days suggest that as a professor Jackson was a very indifferent disciplinarian. He lays stress upon the contrast between the man of 1860 and the man of 1863. "Fate was so gradually but so surely enveloping him in darkness; his life was so like the dull flint until opportunity struck the spark, that the marvel of his genius so nearly buried becomes the more brilliant. . . ."

Two papers of considerable interest are those of Colonels Mosby and Talcott, the former vindicating Stuart's conduct in the Gettysburg campaign, the latter upholding Lee against the charges brought against him by Stuart's defender.

My Experiences at Nan Shan and Port Arthur with the 5th East Siberian Rifles. By Lieutenant-General N. A. Tretyakov.

Translated by Lieutenant A. C. Alford, R.A., edited by Captain F. N. Baker, R.A. 312 pp., 6 maps, several portraits, plans and illustrations. 8vo. London, 1911. Hugh Rees. 12s. 6d.

The original Russian work appeared first in serial form in the *Voenni Sbornik* in 1909. The narrative has now been translated into English, with the author's permission and approval.

The book presents for soldiers a day-to-day record of the adventures of the author, and the regiment which he commanded. It is written on lines somewhat parallel to the naval narrative supplied in

Semenov's "Rasplata," but devoid of the bitter lament as to "what might have been," which characterizes that volume.

It is the story of a soldier's life—told in straightforward soldier's language—amidst the stirring times in the Kuan-tung Peninsula from the commencement of the Russo-Japanese War to the fall of Port Arthur.

In the words of the preface, "we follow the fortunes of the General's own unit, we live with his men amidst the blood-stained wreck of their trenches on 203 Metre Hill, losing all thought of the general conduct of the attack and defence of the fortress—in a word, we are transported from the dry bones of military history to the living realities of the battlefield."

Various references are given in footnotes alluding to or explaining discrepancies between the author's account and our Official History of the War; excellent maps which are included make it easy to follow the operations. It is a book which should appeal strongly to the regimental officer, more particularly to the infantryman. Not the least of its merits is the unassuming character and cheerful self-restraint of the author, who "rarely criticizes, but instead shows us everyone doing his best to make bricks without straw"—a narrative of daily combats and daily work, of duty well performed and honour well sustained.

Although chiefly valuable as a psychological study, the book throws much light on various problems connected with modern siege warfare. Commenting on the Japanese assaults in August, 1904, the author speaks of the importance of a preponderating artillery, and of the danger of exposing guns (p. 113). In several places he corroborates earlier accounts of the value of star rockets in repelling the night assaults which then took place. He emphasizes the value of barbed wire for entanglements, refers to the shortage of barbed wire at Port Arthur, and gives the places where it was used (p. 153).

On p. 146, he writes:—"It is indispensable to teach the infantryman field fortification thoroughly so that . . . he needs no supervision in war time. In the 5th Regiment not only the non-commissioned officers but the men also could point out where trenches should be constructed, and of what length and depth they should be."

By way of comparison, the following, taken from the writings of a French officer who was recently attached to the Japanese Army, is of interest:—

"The construction of shelter trenches is considered in Japan to be chiefly an exercise for N.C.O's (to teach siting, &c.), since, say they (the Japanese), regularity of trace, &c., is of small importance in such works, the soldier, instead of spending his time in constructing these, should learn to throw up more ambitious types of cover, *e.g.*, cover-trenches, traverses, machine-gun emplacements." A British officer corroborates this statement, as does also the practice of the Japanese during their most recent war, in which artillery and infantry often had

to construct extensive cover without the aid or guidance of engineer personnel.

On pp. 204-205, General Tretyakov discusses types of hand grenades, and gives his reasons for preferring some to others.

On pp. 251, 256, 267, he describes instances of their use which would seem to prove that the reports of attachés underrated somewhat their material effect.

In several places—notably p. 271—he describes the terrible effects of the Japanese 11-inch howitzer shells.

As regards the explosion inside Fort Sungshu (Work No. 3), which followed shortly after the blowing up of the parapet, and killed many of the garrison, General Tretyakov states positively that about 1,000 hand grenades stored in an excavation were detonated by a Japanese shell.

The German General Staff account surmises that this catastrophe was due to a delayed mine explosion; the Russian account advances several hypotheses, but inclines to the view which is stated as a fact by General Tretyakov. Our history speaks (Vol. III, p. 119) of “some outside agency” as causing the explosion.

Turning to miscellaneous matters:—

On p. 145 the General says that a retreat is always started by one man . . . in most cases . . . physically weak. “Therefore,” he continues, “it is essential to recruit soldiers from men who are physically strong.”

Whilst warm in his tributes to the behaviour of the sailors who helped to hold 203 Metre Hill, he calls attention to the shortcomings of naval details for land warfare, and instances their deficiencies in outpost duties. He likewise warns against mixed detachments of any kind in a defensive line.

On p. 294, he gives a telling description of the peculiarly trying conditions of siege warfare.

The remarks on pp. 262-263 as to the type of officer needed for modern war are applicable to us no less than to Russia. . . . “What really matters is the spirit, the individuality . . . honourable pride . . . a sense of the high calling of an officer’s profession . . . this is what every military man should have ingrained into his nature. Physical strength and health are also important factors; therefore officers must be encouraged to indulge in sports of all kinds.”

Infantry in the 18th Century. (*L’infanterie au XVIIIe siècle.*) By Captain Bacquet. 216 pp. 8vo. Paris, 1907. Berger-Levrault. 5, Rue des Beaux-Arts. 4s.

This volume is one of a series which is being published by the Historical Section of the French General Staff on the organization and tactics of the three arms. It deals particularly with the organization of infantry in the 18th century, a previous volume having been devoted to the study of the infantry tactics of this period. The object of the book is to give some idea of the French infantry as it was 30 years

before the French Revolution, and to describe the steps which were taken between the years 1762 and 1789 to remove from it the last traces of its primitive character. In the first part of the present volume the state of affairs which existed in the infantry before Choiseul's reforms is discussed, and the methods in vogue as regards the recruiting, payment, feeding, and clothing of the men and the appointment of officers are described. It is interesting to note the large number of foreigners who were at this time serving in the French Army and were grouped in regiments according to their nationalities. Thus there were 26 Swiss, 21 German, and 2 Italian battalions, besides a mixed battalion of Scottish and Irish, consisting of 13 companies.

The somewhat sweeping reforms introduced by Choiseul in 1762 are described in considerable detail, whilst the last part of the volume is devoted to a study of the changes which were made in the organization, administration, and distribution of the French infantry between the years 1770 and 1789. At the end of the volume is tabulated a list showing the various infantry units on the strength of the French Army on the 1st April, 1789, and their stations.

The book will doubtless prove valuable to historians, but is hardly likely to be of interest to the ordinary work-a-day soldier.

MEDICAL.

Service Memories. By Surgeon-General Sir A. D. Home, V.C., K.C.B. Edited by Charles H. Melville, Brevet-Colonel, Royal Army Medical Corps. 340 pp. 8vo. London, 1912. Edward Arnold. 12s. 6d.

No books are more interesting to the military reader than the accounts of the personal experiences of those who have taken part in the campaigns of the past. For the plain unadorned facts of a campaign we consult the academic histories of wars, but when we want to visualize the picture of war, its romance and its sordidness, we turn to the writers of personal experiences, of service memories. Such books, therefore, have a real value, and we cannot but welcome these Service Memories of a distinguished Army medical officer whose military career, which lasted from 1848 to 1886, over 38 years, included service in four continents and active service in five campaigns.

Sir Anthony Home's first appointment was that of assistant surgeon to the 3rd West India Regiment at Demerara. Within a year he was transferred to the old 72nd Foot. His account of his three years' stay in the West Indies, at Demerara and Trinidad, is full of interest. He tells us the old custom of the drums and fifes playing "a Point of War" at reveillé was still in existence and that Peninsular veterans were still serving. He gives us an idea of the deadliness of the rainy season in Demerara when he records the fact that out of 200 white troops 120 were sick in hospital before the season was half over. He returned to England in 1851. In 1854 he went to the 8th Light Dragoons as assistant-surgeon, and in 1855 became surgeon to the 13th Light Dragoons.

He served with the cavalry throughout the Crimean War, and did duty for a time at Scutari. The mortality amongst the French medical officers, from an infectious fever contracted in the performance of their duties in hospital, made it necessary for the French general to request the services of twelve of our surgeons. Surgeon Home was one of those who volunteered for this service, and was detached for a time in attendance upon the French sick in their hospital at Galata. His memories of the campaign throw many interesting side-lights on this war.

We next find him, now surgeon to the 90th Foot, embarking, in 1857, to go on the Expedition to China. The troops were, however, intercepted in the Straits of Sunda, and sent to India, where the Mutiny had broken out. His reminiscences of his service in the Mutiny, in the Relief of Lucknow and with the Oudh Field Force, are very well worth reading. It is to be regretted, however, that his evident reluctance to write about his own deeds causes him to pass over almost in silence that heroic episode during the Relief of Lucknow when, for "persevering bravery and admirable conduct," he won the Victoria Cross. We may note that he praises highly the hospital arrangements for troops in India and their capability of rapid expansion in time of war, and he always speaks well of the "Subordinate Medical Service" in that country.

After a short spell at home, he embarked for China with Sir Hope Grant's Expeditionary Force. Of the China War of 1860 Sir Anthony Home gives an excellent account.

In 1861, when there was strong prospect of war with the United States over the "Trent" affair, troops were hurried to Canada. Surgeon Home was one of those sent on in advance to organize the local medical arrangements. This almost forgotten incident in our history is made living by the author's description of the transport of troops, by rail and sledge, through part of Canada in the depth of winter. Before returning to England in 1862 he paid a flying visit to Washington and the Army of the Potomac, and he gives us his impressions of the Civil War then in progress.

This most interesting volume ends with "an episode in the New Zealand War" in which he makes a striking comparison between the Maori and Boer Wars.

Colonel C. H. Melville is to be complimented on the judicious way in which he has edited this book. He has added as little as possible to the original story, contenting himself by briefly noting the steps in Sir Anthony's career during the intervals between the various campaigns and reminiscences related in these "Service Memories."

MISCELLANEOUS.

Military History for Examinations—Questions on the Napoleonic Campaign, Ulm and Austerlitz, 1805. By Lieutenant-Colonel H. M. E. Brunker. 19 pp. 8vo. London, 1912. Forster Groom & Co. 1s. net.

This book contains a series of 85 questions on the above campaign; also two maps, the first of which shows the theatre of operations, the (1717)

second the march from the Channel to the Rhine. Whether the majority of these questions are likely to be of much practical value is a matter on which one must be permitted to have doubts, in view of the type of questions which has been set at the more recent examinations.

A Traveller's Impressions of Military Russia. By Colonel Heino von Bazedov, Commanding the 8th West Prussian No. 175 Infantry Regiment.

This pamphlet, published as a supplement to No. 255 of the *Russki Invalid*, is a translation from the German. The writer explains that, as he never had an opportunity of attending Russian manoeuvres on a large scale, he is not in a position to give much information regarding Russian tactics, &c. He, however, had many opportunities of seeing and hearing a good deal of military life during his travels in Russia, and gives many interesting details regarding the daily occupations of officers and the other ranks of the Russian Army. Owing to recent changes, some of this information is perhaps not altogether up to date. The writer also visited various Cossack communities, and gives a concise account of their origin and organization.

Studies Military and Diplomatic, 1775-1865. By Charles Francis Adams. 424 pp. 8vo. New York, 1911. Macmillan. 10s. 6d.

This volume contains essays and addresses on the military history of the United States and on the diplomatic features of the Civil War, during which the author's father was United States Minister in London. He himself fought in the Civil War, and has written much with regard to it.

The first four papers deal with the American Revolution, and are entitled :—the Battle of Bunker Hill, the Battle of Long Island, Washington and Cavalry, and the Campaign of 1777. Mr. Adams' criticisms are outspoken and somewhat scathing. He admits that Washington learned much through his mistakes, but regards him not only as not a military genius but as a positively bad general, who was saved from the ruin which on military grounds he deserved, solely through the incompetence of Sir William Howe.

A fifth paper is devoted to the battle of New Orleans. It is argued that the British were defeated because their general had "no head," and their tactics, "if such they deserve to be called, were those of the football field."

The remaining papers refer to the Civil War. They are entitled :—the Ethics of Secession, Some Phases of the Civil War, Lee's Centennial, an Historical Residuum, and Queen Victoria and the Civil War. The impression given by them is that the outcome was really decided not by Grant and Sherman's armies (the Western armies are in fact not referred to) but by the pressure of the blockade on the Southern ports, and that the one point on which the result of the struggle depended was the decision of the British Government not to intervene for the purpose of opening these ports. The most important paper is the second which is a critique of Rhode's History of the United States, Vol. V,

(1864-1866). The last paper is an argued statement intended to disprove the legend that Queen Victoria sympathized with the Union and informed the American Minister that her Government would not recognize the Confederacy.

Siam—a Handbook of Practical, Commercial, and Political Information. By A. W. Graham. 591 pp., with map, 100 illustrations, 3 appendices and index. 8vo. London, 1911. De la More Press. 10s. 6d.

This work traces the evolution of modern Siam, and contains much general information of interest to the military reader, especially in the parts dealing with political history, geography and climate, the inhabitants, social organization, the system of government, the naval and military services, resources, and communications.

The book is readable, and the illustrations are good.

Gun Running and the North-West Frontier. By the Hon. Arnold Keppel. 207 pp., with 2 sketch maps, illustrations and index. 8vo. London, 1911. Murray. 9s.

This book is instructive and interesting; the print is good and easily read.

Chapters I to VIII briefly describe the present-day conditions and influences at work among the tribes on the North-West Frontier of India and in Afghanistan, together with the resultant political and military problems. Special reference is made to the improvement in armament taking place on the frontier, to the attitude of the Amir and Afghan officials, to the policy of the British Government as regards checking the importation of arms, and to tribal feeling on the subject.

In the subsequent chapters (IX-XIII) Mr. Keppel treats of the arms traffic and the measures taken in the Persian Gulf and neighbourhood to suppress it, and gives a brief sketch of the joint naval and military operations on the Mekran and Biyaban coast in 1910-11.

The Crisis in the Production of Half-bred French Horses. (*La crise du demi-sang français.*) By General Dubois. 121 pp. 8vo. Paris, 1912. Lavauzelle. 1s. 8d.

The writer of this book is the commander of the 1st Cavalry Division of the French Army, and a well-known authority on horse breeding. He points out that there is a steadily increasing diminution in the production of half-bred French horses, which are specially required for army purposes. The writer is particularly concerned because the same diminution is not noticeable in the case of other countries, although far higher subsidies are paid to horse breeders in France than elsewhere. Some pages are devoted to a discussion of the probable causes of the present state of affairs in France, and the writer thinks that though the introduction of motor cars may have had some effect on horse breeding, this cannot altogether account for what is going on. He points out that in England and America, where there are more automobiles than in France, horse breeding is in a flourishing condition.

General Dubois' opinion is that the shortage in the kind of horses required for army purposes is due mainly to the fact that the smaller breeders of horses are not sufficiently subsidized, and that consequently they find it pays better to give up horse breeding in favour of cattle rearing.

The remedy he proposes is that a much larger proportion of the present subsidies should be given to the smaller breeders, and that the amount of these subsidies should be, if necessary, increased. He thinks that if this were done, and the establishments of the smaller breeders were thoroughly supervised by the State so as to ensure that suitable horses were used for breeding purposes, a very great improvement in the present condition of affairs would result.

The book is obviously written by an enthusiast, and should be read by all who are interested in the question of horse breeding.

French West Africa. (*L'Afrique occidentale française.*) By Louis Sonolet. 246 pp., with 49 engravings and 1 map. 8vo. Paris, 1912. Librairie Hachette et Cie., 79, Boulevard St. Germain. 3s. 2d.

This book gives a concise account of the six colonies which are grouped together under the name of French West Africa. Among other subjects, the following are dealt with in connection with this vast area :—

- (a) The administrative organization and its evolution from the earliest days, both of which are very clearly described.
- (b) The postal and telegraph system.
- (c) The administration of justice.
- (d) The sanitary organization.
- (e) The military organization, which includes a great deal of very useful information regarding the characteristics and soldierly qualities of the French West African troops.
- (f) The principal towns, with descriptions, and in most cases photographs of them.
- (g) The railways, the exact progress of which is clearly shown on a special map.
- (h) Trades and industries.
- (i) Agriculture, cattle raising, game shooting, and fishing.
- (j) The various races and castes, with a description of their characteristics and customs.

The book is an exceedingly interesting one, and will be welcomed by soldiers and civilians alike.

The Economic Conditions of Europe. (*L'Europe économique.*) By Edmond Thery. 332 pp. Paris, 1911. *Economiste européen.* 50, Rue Sainte-Anne. 2s. 10d.

This book, says the author, has been written with the object of comparing the economic conditions which prevail in the different countries of Europe. It is divided into eight chapters, as follows :—

Chapter I gives the main points in the economic history of Europe for the past 50 years.

Chapter II deals with the population and superficial area of Europe and contains a table showing the population of every country in Europe in 1858, 1883, and 1908.

Chapter III discusses the finances of all the countries of Europe, and shows in tabular form the amount spent on its army and navy by each country in 1858, 1883, and 1908.

Chapter IV contains details regarding the railways, mercantile marine, postal and telegraph systems, wireless installations, and the telephones of each country.

Chapter V gives a mass of information regarding the banks of the different European countries, and contains tabular statistics showing the circulation of money throughout Europe.

Chapter VI is devoted to a consideration of the condition of European agriculture between the years 1898 and 1908, and detailed statistics are given showing the annual amount of corn, wheat, barley, oats, maize, potatoes, wine, sugar, &c., produced by different countries.

Chapter VII deals with the annual production in Europe of coal, copper, lead, zinc, nickel, aluminium, mercury, cotton, wool, and silk.

Chapter VIII contains statistics regarding the import and export trade of Europe. The writer quotes figures showing that in the matter of foodstuffs the value of British imports exceeded exports by £161,000,000 in 1890 and by £198,000,000 in 1908, whilst the value of German imports exceeded exports by £46,000,000 in 1890 and by £78,000,000 in 1908. He notes with satisfaction that whereas in 1890 the value of French food imports exceeded exports by some £20,000,000, in 1908 France was self-supporting in the matter of foodstuffs.

MUSKETRY.

Infantry Fire Control. By Colonel Okumura, Japanese Army. (Lecture given before the Nagoya Garrison Research Society.) Japanese Officers' Club Magazine. May, 1911. Tokio.

The translation of an article by Colonel Okumura of the Japanese Army entitled "Infantry Fire Control" has lately been received, and as it may be considered to embody the results of the latest practical experience of war, a review of it will be of interest to soldiers. The author commences his article by stating that as a result of the South African War Europe, nay the world itself, adopted the theory that the decision will be obtained by fire, and that the assault—i.e., the bayonet charge—will be required only to hasten or confirm the retirement of an enemy already beaten by fire—in other words, that an enemy may be shot out of a position. The Russo-Japanese War, however, upset this theory, and has re-established the assault as the aim of every attack, and the necessary finale wherever a determined enemy is met with. It is not necessary to inquire whether our manuals at any time accepted the theory stated by Colonel Okumura; but if it ever was so, our Regulations are now quite in line with Russo-Japanese experience, as *vide* Infantry Training, 1911, page 120, where it states:—

"The object of infantry in attack is to close with the enemy at the earliest possible moment which seems to offer a fair chance of success. The object of fire in the attack, whether of artillery, of machine guns, of supporting bodies of infantry or of the firing lines, is therefore to make possible the forward movement of the attacking troops and the eventual assault."

And Field Service Regulations, Part I, page 119:—

"The climax of the infantry attack is the assault, which is made possible by superiority of fire."

These last few words, however, still emphasize the necessity for good shooting, and Colonel Okumura, despite having said that musketry had received undue importance as the result of the South African War, states, "numbers, training, ammunition, and other things being equal, victory will go to the side which has the better system of fire control." It is with this fire control that the lecture chiefly deals, but other subjects more or less dependent on it are touched on.

He commences with the subject of the number of sections to be extended, and the amount of front which can be covered by the company. The Japanese principles appear to be much the same as ours, though in the statement that "on the front of the decisive attack 150 metres is the normal front for a company"—i.e., 245 N.C.O's. and men—the Japanese Regulations seem to be more definite than ours allow themselves to be. Colonel Okumura deprecates the imaginary inflation of peace establishments to enable them to occupy frontages which would be required for war establishments, and the neglect to consider casualties. He considers that this is bad training and propagates false ideas. He therefore advocates, for peace training, the combination of two companies to make one of war strength.

"The importance of training units at war strength is clearly stated in the Regulations; they say that every opportunity of doing this should be utilised. Notwithstanding, unless it is specially ordered by a battalion commander or more senior officers,¹ or unless at least 2 company commanders agree to combine in a scheme, this branch of training is rarely carried out. In peace the strength of a company on parade is at the most 100–120 men. If, with this number, the scheme supposes that the company represents one that has suffered heavy casualties, or if only two sections are formed, the remaining section being represented by flags or in other ways, then in either of these cases the exercises should not be far removed from reality. Generally, however, 3 sections are formed from the above number, and unpractical training results. If a section of 30–40 men occupy a front of 150 metres, the interval between each man will be 5–7 paces. As 2 paces is the interval laid down in the Regulations (which provide for sections at war strength), it is usual to extend simultaneously *two* sections from the outset. And this bad habit

¹ A Japanese infantry regiment possesses as part of the regimental staff three field officers exclusive of the commander; each of the three battalions is commanded by a major.—General Staff.

is often overlooked because, in the last phase of the exercise, the company of 100–120 men will be extended over the front of 120–150 metres, which agrees with the requirements of the Regulations.

“The result of this habit will be that when company exercises are carried out at war strength, two sections will be extended from the first whatever the situation, and the frontage of a company will often be 250 metres or more.

“In making up a scheme for the exercises of units at war strength there is one important point that must be borne in mind—namely, that the object of such exercises is not only to afford practice in the command of bodies at war strength, but if the exercises are to carry out the requirements of the regulations, and to resemble war, then umpires or others must create casualties at suitable times and in suitable numbers. If this is not done, 200 men or more will be packed into a front of 150 metres or 2 men in $1\frac{1}{4}$ metres; and as this space does not allow the men to make free use of their weapons, they will unconsciously take up more and more room, and the company will finally be in occupation of too broad a front. In fact, when casualties are not made, exercises in skirmishing are generally unreal.

“One of the reasons why casualties are not made is that the number of exercises is thereby diminished, and the men who become casualties obtain no benefit from the training. But this reasoning is faulty and overlooks the important objects of training for the sake of a few men.”

Our Regulations recognize these needs—*vide* page 182 of Infantry Training, and page 59 of Training and Manœuvre Regulations—but hardly to the extent considered necessary and advocated by Colonel Okumura.

Japanese Regulations as to opening fire both in attack and defence agree very closely with ours, but the author, whilst recognising the necessity for the selection of fire positions in the attack, recognises also the difficulties.

“In country like we find in Japan, where the ground is varied and broken, the selection of fire positions is not very difficult, and the question does not receive much attention. But on the level plains of Manchuria ground suitable for fire positions seldom occurs; generally small folds in the ground, hillocks, long grass, &c., are alone available. In the turmoil of battle, and when in a crouching position, it is no easy matter to scan the ground, and settle upon a firing position 30–40 metres in front of one’s position. But this difficulty is forgotten, and there is little study of fire positions in peace exercises. Ground suitable for the next position is not chosen before each advance, but the men are halted at regular intervals, and choice of fire positions is often left to section and group² leaders.”

This is an experience not altogether absent from our field operations! The author devotes some pages to the question of Indication of Targets, and in this his opinions hardly agree with our procedure, *e.g.* :—

² A Japanese section (one-third of a company) is divided into groups or squads numbering from 8 to 16 men each. The number of squads (groups) in a section is always an even one.—General Staff.

"A company usually fights as an integral part of a battalion, rarely as an independent unit (Infantry Regulations, Part I, page 110). Only when the situation especially demands it will the battalion commander in attack point out an objective to each company; as a rule, he will merely indicate the battalion objective, and tell the commanders of the companies in the first line to co-operate," which seems less sound than our Regulations *vide* Infantry Training, Section 121, paragraph 2: "the influence of the commander will be very great if exerted in the proper manner, viz., by means of clear, comprehensive, and concise orders, framed after careful reconnaissance, made known to all subordinate leaders, and providing for the combined and simultaneous action of his whole force."

This paragraph seems to enjoin the division of the objective between companies, for otherwise what is the use of the "careful reconnaissance," or how can the "clear, comprehensive, and concise orders" be given?

Again, Colonel Okumura states: "Having first been informed by the battalion commander as to the battalion objective and number of companies in the first line, company commanders will thereupon determine the front for which they will generally be responsible."

He also says that:—"At peace exercises it is not uncommon (nor is the practice discouraged) for company commanders to assemble their section leaders at a certain spot, and carefully point out the target to them before beginning the attack, or opening fire. This, I think, is a practice that should be discontinued. In the operations of a battalion, the commander will, if the situation permit, first assemble his company leaders and thoroughly explain the situation to them before beginning the attack (Infantry Regulations, Part I, page 180), but this is not usual in the case of a company. As a general rule, a company advances or retires at the word of command of its leader, and it is felt that unless there is plenty of time available valuable moments are wasted and opportunities are missed if the latter first collects his section leaders and gives them a lengthy explanation, and if this is done section and squad leaders are, from lack of practice, made incapable of quickly acting on their own initiative, or thinking for themselves."

"The necessity for a simple, clear, and quick method of pointing out the target is generally appreciated. Nowadays, however, it is very difficult to perceive targets owing to the similarity in colour of modern uniforms and the surrounding features, and to the fact that troops are encouraged to expose themselves as little as possible to view. Even in peace we experience this difficulty, and, as mentioned above, suitable aiming points are rarely available, so that it is an extremely difficult thing to point out the target. Some time must therefore elapse before every man knows in what direction he should fire, but time is well spent in pointing out the target at the outset, and, after all, it will generally only be necessary to do so once, as the objective will not be subject to frequent change."

This shows that our experience of the difficulty in indication of targets is a common one, but no new light is thrown on the subject by the writer of the article, and the methods of Japan seem to be in all respects similar

to those used by us. The author seems to be opposed to the attempt to allot special objectives to each section, for he says :—

“With regard to the question whether the target should be allotted to sections. If a target admits of definite sub-division, so that a portion can be allotted to each section, easily and without risk of error, then there is no doubt that such allotment is advantageous. But it is seldom possible, and only so, when the area of the target is broken by ridges, woods, villages, &c. Moreover, two or three sections of a company are seldom extended at the outset. The first section to be extended fires at the whole of the objective allotted to the company, and if a redistribution of the target is attempted when one or two sections join the firing line, confusion will certainly be caused.

“But, as mentioned before, whether the company commander divides up the objective, or merely defines its two flanks, the indication of the target is a difficult matter, and attempts to sub-divide a continuous hostile line among the sections of a company usually result in confusion. Consequently, except when firing at artillery or closed bodies with narrow intervals between them, opinion is generally against this course. And even in the two cases just mentioned, the state of the weather must be considered. If the wind is blowing from a flank of the line of fire, the whole of the cone of fire may be in consequence fall in the intervals. That expert in the theory of fire—General Rohne—considers that in such a case fire should be distributed over the whole of the target, and that a sub-division of the target is distinctly disadvantageous.”

The writer next points out the necessity for consideration of the height of any auxiliary aiming mark in relation to the target, rightly laying stress on the fact that a correction in sighting is necessary if the aiming mark is apparently higher or lower than the target. He does not however, seem to consider the use of the range-finder in this connection, which, when time permits, is the simplest way of dealing with such considerations. He deprecates changes of targets as leading to confusion, but this again seems to depend upon whether we have a high standard of training which will render us superior to the confusion which he fears. There is, however, nothing to quarrel with in his saying that targets should not be changed without real and especial cause, and this is entirely in accord with our Regulations.

Colonel Okumura then devotes some pages to the question of ranging, and seems to come to the conclusion that it is not well to depend too much on range-finding instruments. He advocates that reliance should be placed on judging distance within medium ranges. The following shows the methods used in Japan, and seems to prove that Japan is hardly up-to-date in this respect.

“In Japan, neither the pattern of instrument nor the number to be carried has yet been fixed. But although there is no infantry regiment that does not possess a certain number of instruments of one sort or another, they are practically never used, and there are some officers who know neither the method of use nor even the name of the range-finder which their regiments possess. Judging distance by eye is supposed to be

practised at field exercises, but it is seldom done. Moreover, at field exercises, company commanders and subordinate leaders all carry large scale maps, and distance is judged by means of the $\frac{1}{20000}$ sheets. But the sight of company commanders and their staffs opening maps and recognizing every object thereby, or carefully examining the enemy through binoculars, will be unusual close in front of the enemy. We must not expect to have accurate maps in battles of the future.

"Reviewing the present situation, in addition to an increase in the number of exercises in judging distance, I consider that the carrying of maps by companies—except when they are acting independently—should be forbidden. Further, those who make out the scheme for an exercise should measure the ranges beforehand, and a large number of umpires are on this account also required. The fact that practice in judging distance is not and never has been given its proper importance, is an established evil in Europe and Japan; an evil which must be lessened if the full value of our accurate weapons is to be obtained."

Questions of sighting as affected by changes in altitude and temperature and wind, are all considered, and the conclusions arrived at in no way differ from those given in our Musketry Regulations. As regards altitude the following is of interest:—

"When fighting in country 1,000 metres above sea level, and in very hot weather, 100 metres correction is required at ranges about 600 metres. I have heard that for this reason the Dutch Colonial troops in Africa have a specially engraved sight attached to their army rifle. And as the Japanese Army may have to operate in high-lying country, the necessity or otherwise for adopting similar arrangements should receive consideration."

Under the heading of "Aiming" the writer discusses the difficulty of the indication of targets, and considers that the blame for failure of effect is generally due to the faulty control and indication by the N.C.O's. who he considers should be capable of seeing the direction in which every man of the squad is firing and of correcting him if wrong.

"Supervision of aiming is the duty of squad leaders, and must therefore be carried out; the question is how. A squad leader will always know the position of his squad in the company in relation to the other squads and to the objective of the company. He will accordingly fix the portion of the target, against which the rifles of his own squad should be directed, and (a) either issue orders to the whole squad, or (b) from the rear, fix the alignment of two or three rifles in front of him, the others taking their direction from these, or (c) issue directions as to the target to the men by name as opportunity offers. These are three of the many alternative methods. The most thorough method is to move from one man to another, and inspect, from the rear, the alignment of each rifle."

He admits that this will be difficult under fire. There can be no doubt that as a general rule the verbal indication only can be depended on, and to make this perfect must be our constant endeavour if we are to get the full power of fire.

The author ends this article with a consideration of the rate of fire.

He says that "the rate of fire depends upon the condition of the enemy, the range, the training, and physical strength of the rifleman, ammunition available, &c.," but he omits the most cardinal point, *i.e.*, the size of the aiming mark, which, with proper fire discipline, is almost the only consideration.

The following passage seems to show that the Japanese are contented with a very moderate rate of fire.

"As the result of considerable experience, I am able to compare the results of several hundred cases of slow practices, and snap-shooting (5 rounds per minute). The comparative accuracy of the former method is always demonstrated. The rate of fire must, however, always depend upon the degree of training of the individual, and to give an instance, the rate of fire of the units that I have commanded was never more than 5-6 rounds per minute. What would then be the result, if the troops I commanded were opposed to an enemy capable of firing 6-8 rounds per minute without any loss of accuracy?"

The writer gives no answer to his question, but considering that highly-trained men can fire over 30 rounds per minute with quite reasonable accuracy, the author's question is certainly worth asking.

"As everyone knows, fire control is no new question. It is easily described but difficult to carry out" is the conclusion of the article, a conclusion which everyone who has had experience of shooting will fully endorse. Seeing that fire effect must depend on this control, and that control coupled with fire discipline will win the battles of the future, we cannot too closely study it and strive to attain it.

Musketry Instruction and Miniature Range Shooting. By Quartermaster Sergeant-Instructor D. James. 112 pp. 12mo. Forster Groom & Co. London, 1912. 1s. net.

These notes have been compiled with a view to assist N.C.O.'s. engaged in the musketry instruction of the Territorial Force, Officers Training Corps, &c. They are divided into eight chapters, the first six of which deal with the various subjects which it is necessary a soldier should know before he can be considered efficient with his rifle. The last two chapters deal with miniature rifle shooting and are based on the methods adopted by the military authorities.

The book should prove useful as an introduction to military shooting.

POLITICS.

Wake up, Germany! (*Deutschland sei wach.*) Anonymous; published by the German Navy League. 216 pp., with an index. 8vo. Berlin, 1912. Mittler. 1s.

This publication is one among many of its kind that have been sown broadcast in Germany during the interval between the Moroccan crisis of 1911 and the introduction of the Defence Bills in the spring of 1912. The attitude of the writer towards the question of Anglo-German

politics is based, as in all works of this kind, on the hypothesis that German foreign policy is so transparently straightforward and pacific that no honest person has ever suspected it of being otherwise; while that of Great Britain is inherently aggressive and inspired by motives of self-aggrandisement, and the desire to pose as the supreme arbiter of European affairs. In the historical survey which occupies the first portion of the book this argument is elaborated in characteristic fashion. Among the many crimes imputed to England are that at the Vienna Conference in 1815 British influence prevented Prussia from receiving Belgium as "her well-earned reward," a significant phrase which is applied to Belgium more than once in the book; that by taking Heligoland from Denmark, Great Britain compelled Germany to purchase it in 1890 with territory in East Africa—the inference being apparently that if the island had remained Danish, it might have been had for nothing; and that having driven Turkey and Italy into a war in open pursuance of her own plans (sic) England has now cynically profited by the occasion to seize Sollum for herself.

The most important conclusion drawn by the author from the historical portion of the book is that Great Britain has persistently used sea supremacy as a stepping-stone to world supremacy; that with this object in view she has in the past allied herself with such of the weaker Continental states as were not likely to develop into competitors, in order to defeat the Power most immediately dangerous to her ambitions; and that she has in this way repeatedly overthrown her rivals, with a comparatively small sacrifice of personnel, though at the cost of a lavish expenditure of money. The writer labours to prove that England endeavoured in this way, notably in 1890, to use Germany as a "Continental sword" against Russia when the latter Power's advance towards India was causing her anxiety; and that, having been foiled in this attempt by the shrewdness of German statecraft she began in 1895 to seek a counterpoise for Russia in the growing power of Japan. It was at the beginning of the 20th century, we are told, that Great Britain decided that the position of *primus inter pares* among the world Powers could no longer satisfy her ambition, and that the whole world must henceforth be brought permanently under the British sceptre; the only obstacles to this plan were the rising commercial and maritime prosperity of Germany, and the forward policy of Russia in Asia. It was to meet the latter peril that Great Britain abandoned the "splendid isolation" to which she had clung for a century, and contracted the alliance with Japan in 1902. Though the Russo-Japanese War was thus waged in her interests, Great Britain still contrived to keep on good terms with Russia's ally, and to draw her into an *entente*, thus acquiring the long-desired "Continental sword" against Germany. The meeting at Reval, and the *entente* with Russia were, the writer asserts, prompted solely by the blind Germanophobia of British statesmen, who sacrificed their real interests in the Middle East in order to combat those of Germany. All suppositions that the policy of *ententes* may have been based on defensive

rather than on offensive considerations, or that the fears of a German invasion were anything more than a mask for aggressive designs are rejected as the merest subterfuges. Similarly all talk about British trade interests or the traditional sympathy of England for oppressed nationalities is regarded as transparent hypocrisy.

British policy, the author insists, is essentially aggressive and domineering, governed solely by antagonism to Germany, and, in recent years, by chagrin for her failure to play the arbiter in the Bosnian crisis. The naval war scare was, we are told, merely an election cry for the Liberal Party (sic) in 1909. On the other hand, the phrases "preservation of peace" or "defence of her interests" are put forward to prove the purely defensive nature of any action, however militant, on the part of German diplomacy.

By a somewhat circuitous argument the author lays the responsibility for the growth of the German fleet at the door of England. He quotes the famous "Daily Telegraph" interview to show that Germany considered herself unable, in 1900, to join in a coalition against Great Britain, owing to the risks to which the German troop transports plying between Europe and China would have been exposed in a war with a stronger maritime Power. The realization of this fact brought home to Germany the need for strengthening her navy. Hence, the author naïvely concludes, England, by means of the Boer War, was actually responsible for the development of German sea power.

Turning next to the strategical aspect of the question, the author is faced with the problem of finding a reason for an increase of the navy without giving any handle to accusations of aggressive designs. The general line of argument is as follows:—At the time of the Moroccan crisis of 1905, when war between France and Germany appeared imminent, it was decided to land a British force at some point on the Jutland coast; the existence of this project is held to account for the visit of the British fleet to Esbjerg and the landing of parties (sic) there, and on the east coast of Jutland. On this occasion, however, war was averted because France found herself unprepared. The question of British military action in aid of France continued, however, to be discussed, and it is this problem which, in the author's opinion, underlies the frequent reforms, or rather the continuous reorganization, of the British Army. French statesmen insisted with reason that Dreadnoughts could neither go to Berlin nor steam up the Meuse Valley, while, on their part, the English became more and more convinced that the security of Great Britain depended on a defeat of the French Army on the land frontier being averted at all hazards. The scheme of a landing at Esbjerg was, however, abandoned, both because it would be too eccentric to be effective as a diversion, and because, unless the German fleet was absolutely blockaded in its ports, the transport of an expedition to the Jutland coast would be impossible during the first stage of a war. A landing in French territory might have appeared safer, but this plan again suffered from the defect that the force would be unable to reach the scene of action within the decisive

period. It was therefore resolved that the British should land in Belgium and act in conjunction with the left wing of the French Armies.

That this plan has been agreed on is held to be confirmed by the protests raised in England against the fortification of Flushing by the Dutch.

This landing in neutral territory would be excused by England on the ground that Germany was herself contemplating a violation of Belgian neutrality in order to outflank the left wing of the French line. Here the author pauses to disclaim any such intention on the part of his country, but adds that Germany must be prepared at the first news of the embarkation of troops in an English port to take vigorous action in Belgium in anticipation of the enemy's plan; it would be of vital moment to Germany to oppose the landing of the British force, and its junction with the French left wing.

It is in this stage of the operations that the German fleet can play a decisive rôle. British strategy will, in the author's opinion, consist at the outset of the war, in "sealing" the North Sea with vessels of secondary importance, while the main fleet remains concentrated in a central position whence it can strike at the German fleet, whenever the latter should put to sea.

This strategy will, however, be seriously hampered by the necessity of covering the transport of the Expeditionary Force to the Scheldt. The British fleet will thereby lose much of its freedom of action, and will tend to remain in the western part of the North Sea, leaving the eastern coast of England exposed. If, however, the German fleet is skilfully and vigorously handled, command of the sea sufficient to ensure the safe transport of the British force may not be attained by England for some weeks after the commencement of war, that is to say, not until the assistance of this force will be too late. A great advantage of this plan, from the author's point of view, is that the German Army will thus be relieved of a possible danger without having become in any way weakened in the process. The German Navy must, therefore, be strong enough not only, as in the past, to cause grave risk to any naval Power venturing to attack it, but henceforward to prevent the transport of British troops to the Scheldt during the first stage of the war. For this purpose, it is pointed out, absolute strength is far more important than relative strength, so that a corresponding increase of the British navy need not affect the success of the strategy outlined above. The author predicts that if the German fleet can be strengthened to the required point, the British projects for sending troops to the aid of France will have to be abandoned; Great Britain will then be thrown back on the expedient of a protracted and inconclusive war against German commerce, while France will become convinced that the British alliance can do nothing to save her from defeat on land. A "re-grouping" of the Powers is then certain to follow: in other words, France will range herself on the side of Germany. The author lays great stress on this point, maintaining that France has already lost golden opportunities through her subservience to

British policy, and that once the conviction has gained ground that England is powerless to help her the logic of facts will prove stronger than the logic of sentiment.

Turning to the Baltic, the author finds fresh arguments for an increase in the navy. The attitude of Russia in a war between Germany and the Western Powers is, he thinks, difficult to predict. It is most improbable that Russian statesmen would agree to fight Germany unless Russian interests were at stake, or, in any case, that they would consent to Russia's acting as a "Continental sword" for England; assurances were interchanged at the Potsdam interview in 1910 that neither Russia nor Germany would join an offensive coalition directed against the other. The recent strengthening of the Russian Baltic fleet has probably, he considers, only been undertaken at the instigation of Great Britain and France in order to induce Germany to weaken her squadrons in the North Sea. Nevertheless, he continues, the dislike of the Russian people for Germany cannot be overlooked; nor can the recent withdrawal of Russian troops from the frontier of German Poland be interpreted as a sign of goodwill to Germany, as this step was no doubt primarily due to considerations of mobilization. The increase of the Russian fleet must therefore be taken into account as a new factor; Germany can no longer concentrate her full strength in the North Sea against England, while the latter Power, thanks to her *entente* with France, can now unite her whole force against Germany, a condition which was assumed to be impossible in the Navy Bill of 1900. Only a treaty with Russia, the author concludes, can relieve Germany of this anxiety as to her position in the Baltic.

With regard to the Mediterranean, the author observes that Germany is the only Great Power which has no direct voice in Mediterranean questions; nevertheless her interests are those of Austria and Italy. The withdrawal of British ships to the North Sea to make head against Germany's growing strength in that quarter—though in one sense a victory for Germany—has given France a predominant position in the Mediterranean; the strengthening of the Austrian and Italian fleets offers some counterpoise to Franco-British supremacy, but only so long as Austria and Italy put aside sentimental rivalries and co-operate in support of their true interests. Meanwhile, Germany must realize that in case of a European war her navy will have to contend alone and unsupported against the fleets of Great Britain, France and Russia.

As regards pacification in general, and the limitation of armaments, the author favours arbitration treaties of limited scope, as tending to eliminate wars on secondary issues, but urges that any form of unlimited arbitration before an international tribunal is incompatible with the sovereignty of the State. Germany, he says, has to provide for an annual increase of 900,000 inhabitants; for these she requires elbow-room both politically and commercially, a right which has recently been denied her with menaces of war. She must now decide whether she will be content with the limited rôle of a European Power,

or assume her rightful place as a World Power ; in the latter case she must be prepared to make sacrifices both of money and blood, to withstand the enemies who are seeking to hem her in. No agreement to limit the development of her fleet can, he insists, be contemplated by Germany ; the initiative for any such step should, he contends, properly come from Great Britain as being the stronger Power, and yet Great Britain has never made any definite proposal—an argument which appears somewhat disingenuous considering the result of our last attempt in that direction.

Finally, the author, after gratuitously asserting that Englishmen of high position have endeavoured to induce the United States to join Great Britain in opposing the development of Germany, makes a proposal that this country and Germany should develop their empires in co-operation instead of in antagonism. Expressions of this sort occur from time to time in the book ; whether inserted by another hand or intended to produce an impression of open-mindedness and impartiality, we do not know. It can only be said of them that they are little in harmony with the author's theme. Even admitting that a book which is written with the object of enlisting support for a particular measure is not to be judged by the ordinary standards, it is difficult to see what object can be served by the dissemination of literature of this sort, except—to quote Herr Haussmann's indictment of the German Navy League—" the propagation of fear of England and antagonism to England."

The Russian People. By Maurice Baring. 366 pp. and 4 maps. 8vo. London, 1911. Methuen. 15s.

In his preface the author explains that the object of his book is to supply the average reader with the facts about Russia and her people. He desires to remove the false impressions which are prevalent, and to depict the country and the characteristics of the people in their true proportions. Mr. Baring has succeeded admirably in his purpose, and his work will prove of especial interest to the soldier. The book opens with a description of the physical geography of the country, followed by a chapter on " What Russia looks like," and a short account of the ethnology of the races in European Russia. In the chapter on " The Russian character " the author brings out the very remarkable paradoxical qualities inherent in the Russian peasant—the material which furnishes the Russian soldier. It is shown that he possesses a happy-go-lucky spirit combined with fierce energy, " a power in emergency of accomplishing more than the maximum ; " although he often lacks individual initiative, he possesses in a high degree the power of co-operative action, and can work in combination without feeling the need of any special leader. In proof of this quality the author relates how, after the battle of Ta-shi-chao, the retreat of the mass of transport was accomplished automatically in an orderly manner without any supervising control, so as to draw even the admiration of Colonel Gädke, who was present. The Russian is able to achieve much in a

short time. He has "a dash, a go, a scorn of obstacles and difficulties, a desperate determination to accomplish the end in view," and yet there is no people with so little aptitude for continuous hard work. There exists a tendency to extreme re-actions, bouts of energy are succeeded by bouts of apathy, and pessimism ensues. Again, there is revealed an absence of discipline in the nation, to which cause mainly the author traces the failure of the Russian people to attain the measure of political liberty which they desire. Attention is drawn to Russian horsemanship; the seat of the peasant, accustomed to ride from earliest infancy, is perfect. Another interesting chapter is headed "Some manners and customs peculiar to Russia." A short sketch of Russian history is given, and emphasis is laid on reforms introduced by Peter the Great.

The characteristics of Russian literature are examined closely in the chapter on Pushkin.

The latter part of the book deals with the Russian agricultural system, the emancipation of the serfs, the revolutionary movement, and religion in Russia. Two facts which the author brings out clearly are: the strength of public opinion in Russia; and the influence which religion exerts on the national life. Public opinion has always been able to make itself felt. It put Catherine II on the throne; it defied Napoleon I; it supported the wars against Turkey, disapproved of the war against Japan, and withdrew its support from the revolutionary movement in 1905. The conclusion of the book states that "religion in Russia will always remain a part of patriotism."

RAILWAYS.

Railways in War. (Железные дороги въ Военномъ отношеніи.) By Colonel Domelunksen, Russian General Staff. 217 pp., with numerous plates. 4to. St. Petersburg, 1908. General Staff Press. 6s. 3d.

Colonel Domelunksen was in charge of troop movements on the Trans-Baikal and Circum-Baikal Railways during the Russo-Japanese War, and he has written his book primarily for the military student.

He divides his subject into three parts; he deals first with broad-gauge railways (Russian gauge, 5 feet); then with light railways worked by locomotives; and lastly with horse-traction tramways. In the opening chapter the author describes the construction of permanent way, and gives details of station equipment, rolling-stock, and line maintenance generally. Traffic management is described in Chapter II. The movement of troops by railway in peace and war, and the special expedients for coping with heavy military traffic, are dealt with in Chapters III and IV.

Railway management generally and the duties of the military officials who supervise Russian railway traffic are included in Chapters V and VI.

The method of constructing, equipping, and working a light railway of 750 millimetres (29·5 inches) gauge is given in Chapter VII. The (1717)

horse-tramway described in Chapter VIII is also of 750 millimetre gauge ; data are given of various makers' types of rail and rolling stock, and of the means adopted for laying the track rapidly and for working the completed line.

STRATEGY AND TACTICS.

The Doctrine of National Defence. (La doctrine de défense nationale.) By Captain Sorb. 416 pp. 8vo. Paris, 1912. Berger-Levrault. 6s.

Captain Sorb's new book—the greater part of which has appeared in serial form in the *Revue Militaire Générale*—practically amounts to an appreciation of the international situation in Europe from the military, and to some extent from the naval, point of view.

Such a study involves consideration of the military and naval potentialities of Germany, France, Great Britain, Russia, Austria, and Italy. This is a very great undertaking, involving as it does a close acquaintance with the strategical schools of thought in the countries concerned, intimate knowledge of the organization and mobilization arrangements of their armies, as well as statistics on the railways and roads of the whole of Europe. In addition, the tendency of the foreign policy of each of the countries concerned must be correctly fathomed, and the financial consequences of a vast European war must be estimated. It is extremely difficult for a private individual to compile a work of so wide a scope, and this fact should be borne in mind by readers of this interesting and courageous book.

Captain Sorb is of opinion that the policy of the Germans will be to force a decision with the least possible delay in order to crush the French Army before the intervention of the Russian and British Armies has become effective. Therefore, from the purely strategical point of view it would be advantageous for the French to postpone a decision as long as possible ; on the other hand, if this postponement were to involve a general retrograde movement of the French forces and the abandonment of a considerable portion of French soil to the German armies, the advantages to be gained would be more than counter-balanced by the injurious moral effect produced in France and among the nations friendly to France. The solution suggested is the organization of a line of resistance not far removed from the French frontier, followed by a decisive counter-offensive *visâ* either Toul or Verdun, according to the situation. Stress is laid on the importance of winning the first battle ; in fact, the author is of opinion that the result of the first battle will decide the campaign, a view that has already aroused considerable opposition in French military circles.

Not the least interesting portion of this book is the chapter dealing with the Anglo-French entente. The effect of Lord Haldane's re-organization is followed in some detail, and numerous extracts are given of the speeches of British statesmen and military writers. The author finally comes to the conclusion that although the entente may provide valuable assistance to France in case of war, it is undesirable to transform the entente into an alliance, firstly because the function

of our Expeditionary Force is still uncertain, secondly because Great Britain might be tempted to precipitate a war in which the French Army would be forced to act as the "soldier" of England.

Although, as has already been said, the scope of the book is perhaps a little ambitious, it is full of most interesting matter and provides much food for thought. The Moroccan crisis of 1911 has produced a host of literature on strategical subjects, among which "*La doctrine de défense nationale*" takes a high place.

Naval Strategy. By Captain A. T. Mahan, United States Navy. 475 pp., and 13 maps and plans. 8vo. London, 1912. Sampson Low, Marston. 16s.

The text of this volume is, the author states, substantially that of lectures given at the United States Naval War College at various periods between the years 1887 and 1911. These lectures, written first in 1887-8, have been revised and expanded from time to time, and were finally revised in 1908. Thus they represent the matured fruit of 21 years' thought and experience. In the absence of any modern work on the subject by a British naval officer, they are of special interest to the Army. Captain Mahan pathetically remarks that he endeavoured to form a library of works on naval strategy, but, that "outside of occasional papers of the nature of magazine articles, there was no formal treatise except Colomb's '*Naval Warfare*,' published in 1890;" that one short bookshelf sufficed to contain all the books on naval tactics, and that half of these were elaborate treatises on the tactics of sailing ships.

In his introduction Captain Mahan gives it as his opinion that experience is history in the making, but that as a rule experience is quickly forgotten unless recorded. That, on the other hand, history is experience recorded. His lectures, therefore, are simply the announcement of principles with illustrations drawn from history in their support. "It is," he says, "trite to remark that a bare assemblage of principles although useful to an expert, to steady him in moments of doubt or perplexity, can serve little to a novice, who has not clothed them with illustrations drawn from personal experience, or from history, which is the experience of others recorded for our use."

The first five chapters are therefore devoted to historical illustrations and comments on (1) the importance of concentration of force whether in land or sea fighting; (2) the value of the possession of a central position as a means to concentration; (3) the use of interior lines; and (4) the influence of lines of communication on operations.

Then follow five chapters on "foundations and principles," in which is brought out that the strategy of sea warfare is practically the same as the strategy of land warfare. "It is in the study of the best military writers that we shall find the most ample foundations on which to build the new structure." "With the going of uncertainty and the coming of certainty into the motive power, a chief distinction between the movements of fleets and armies has disappeared." Captain

Mahan, however, points out, quoting from a French author, that there is this distinction :—Naval strategy differs from military strategy, “ in that it is as necessary in peace as in war. Indeed in peace it may gain its most decisive victories by occupying in a country, either by purchase or treaty, excellent positions which would perhaps hardly be got in war. It learns to profit by all opportunities of settling on some chosen point of a coast, and to render definite an occupation which at first was only transient.”

Further the conditions of sea warfare are far simpler than those of land warfare, “ because land is by nature full of obstacles, the removing or overcoming of which by men’s hands opens communication or roads. By nature, the land is almost all obstacle, the sea almost all open plain.”

There is also the very large geographical scale upon which naval operations are conducted as compared with those on land. This was an aspect which particularly struck General W. T. Sherman, when he read the draft of the original lectures.

Captain Mahan does not approve of the “ Blue Water School ” or the “ Fleet in Being School.” He holds, for instance, that convoys of troops can be despatched whilst the enemy’s fleet exists in the neighbourhood of the line followed, provided they are protected by an armed escort. He points out that troops were despatched by both belligerents during the war of American Independence, “ when there was a substantial equality between the opposing navies.”

The final chapters deal with the application of the principles to the Gulf of Mexico and the Caribbean Sea, the Russo-Japanese War, and Coast Fortifications.

The volume is so packed with terse sayings that nothing but a thorough study of it can give a just idea of the contents. Many of these sayings have fully as much bearing on armies as on navies, e.g., “ Panic, unreasonable apprehension, when war begins, will be found in the same persons who in peace resist reasonable preparations ” ; success in war generally depends on the possession of “ that indefinable sagacity which reaches just conclusions through a balancing of reasoning without demonstrable proof.”

It may be asked, if the principles of naval and military operations are practically identical, how is it that Napoleon failed when he planned the movements of fleets ? Captain Mahan supplies the answer. The operations broke down at the point wherein their conditions differed from those of land warfare ; “ Bonaparte, to quote a French author, never attained ‘ le sentiment exact des difficultés maritimes.’ ”

For the needs of the British Empire the author considers there are necessary “ a supreme navy, an army adequate for external action, and a position consolidated in Northern Europe,” that “ on every sea frontier there should be at least two secure ports, sufficiently fortified and capable of making any and all repairs.” He points out that “ if war existed between Germany and Great Britain, with the British Navy controlling the North Sea, German vessels having once reached the

coast of France or of Norway might proceed with safety within the conventional 3-mile-limit."

The Duration of the next War. (La durée de la prochaine guerre.) By Commandant Mordacq, of the French Staff College. 34 pp. 8vo. Paris, 1912. Berger-Levrault. 9½d.

As is pointed out in a preface by the late General Langlois, this book is intended to confute the dangerous theory that a future Franco-German War would be decided by the first battle; a theory that has received some support in France, notably in a recent remarkable book, "*La doctrine de la défense nationale*," by Captain Sorb.

The author is of opinion that owing to the altered circumstances, not only of modern war, but of modern industry, modern finance, and modern social conditions, it is impossible to foretell what the duration of the next European war is likely to be. He therefore contents himself with marshalling evidence to show that while it may be unlikely that such a war will last six months, it is still less likely that it will be decided by the first battle.

Various modern military authorities are quoted, and it is shown that the majority of them are in agreement with the author. It is true that General Bonnal in France and Field-Marshal Count Schlieffen in Germany consider that the result of the first battle will be decisive; but on the other hand, Generals Langlois, Maillard, Von der Goltz, and Blume take the contrary view.

The author takes as his test case a war between the Powers of the Triple Entente and of the Triple Alliance. He considers that in a war of this magnitude, it is most unlikely that peace would be accepted after a single unsuccessful battle. Both groups of Powers would have ample men and material to continue the struggle; loyalty to her allies, as well as self-interest, would prevent a single nation making a sectional surrender.

As regards finance, the author produces strong arguments to show that it is a mistake to suppose that the influence of finance on war is all-powerful, especially during the first few weeks of a campaign.

The possible weak point is in the people themselves, who, imbued with pacifist nostrums might be able to put effective and fatal pressure on a weak Government. Consequently every step should be taken to toughen the moral fibre of the people and to teach them that victory in war depends chiefly on the tenacity of a nation.

Strategy. (La Stratégie.) By Commandant Mordacq, of the French Staff College. 248 pp. 8vo. Paris, 1912. Fournier. 2s. 10d.

In the first 100 pages of this book the evolution of strategy is traced from the beginning of the 19th century to the present day.

The author considers that the writers on strategy since the Napoleonic Wars may be placed in the following groups:—

The "doctrinaires," such as Jomini, who looked upon strategy as a geometrical and mathematical science and who invented a species

of dictionary of vague military terms, most frightening to the average soldier.

The "idealists," the greatest of whom was Clausewitz, who treated war from the philosophic point of view, and whose ideas, great and suggestive as they were, do not hold good in their entirety under modern conditions.

The "leader of men" school, who held that scientific study was unnecessary, because leaders were born and not made. These ideas were prevalent in France after the Crimean and Italian campaigns, but received a severe set-back in 1870.

Finally, the present "common sense" school, exemplified by the works of Von der Goltz, Bonnal, and Langlois. These writers admit that the underlying principles of strategy change little, but insist that they cannot be applied academically but only after a profound study of the military, social, and logistic conditions of each particular case.

In Part II the modern evolution of strategy is considered from a historical and logical point of view.

In Part III the various modern developments which influence strategy are enumerated and examined. The author groups them into :

- (1) Material factors, such as quick-firing armaments, railways, aeroplanes, telegraphs, &c.
- (2) Moral factors. The increase of fighting effectives, the alteration in social and financial conditions.

Commandant Mordacq breaks a lance with the advocates of the "strategic advanced guard" and points out that although this method of strategy might be advantageously utilized (as it was by Napoleon) in the case of comparatively small armies, it does not necessarily follow that it is equally applicable in a campaign on a front of 200 miles.

Questions and Answers on Tactics. By Captain J. Demangel, B.Sc., B.A. (London). 209 pp. and index. 8vo. London, 1912. Forster Groom & Co. 6s.

SUPPLY AND TRANSPORT.

The Raid to Inkow, from a Supply and Transport point of view. (A critical study.) By A. Shemanski. I.J., No. 4, 1912, p. 67.

The writer points out that the success of General Mishchenko's force depended chiefly on its power of swift movement and therefore on its taking with it the minimum of transport. In fixing this minimum, it was necessary to consider whether the force might be expected to subsist solely on local supplies; in other words, would a sufficiency be found, not only of food, forage, and wood, but also of animals and carts to collect these supplies, as the force moved.

According to the writer, the Russian official information was to the effect that the district to be traversed was very fertile and populous and that though, in the earlier stages of the war, the Russians had drawn on it freely for supplies, there was no lack of provisions so far, since they were still being sent in to Inkow.

Acting probably on this information, General Mishchenko arranged to take 1,500 pack animals (4 pack-horse companies and 1 pack-mule company), to carry two days' provisions and forage for his force.

His force consisted of $72\frac{1}{2}$ sotnias (squadrons), 4 companies $\frac{1}{2}$ of mounted scouts and 22 guns; in all about 7,500 mounted men. As the distance from Sifontai, the rendezvous, to Inkow was about 80 miles, General Mishchenko evidently considered that, with this margin to provide against accidents, he would be able to subsist his force on supplies procured en route.

At this point, however, General Kuropatkin stepped in and expressed the opinion that General Mishchenko's force would be moving through a district in which supplies were already exhausted and he accordingly ordered not two, but five days' supplies for the force to be collected at Sifontai. He further gave orders for a herd of 60 cattle and for a number of two-wheeled carts, with picked horses, to be taken in addition to the pack transport. These failed to reach the rendezvous in time, but were replaced at the last moment by the pack animals belonging to units taking part in the raid.

In the end the force started with the following transport and supplies:—

	2	days' food and 2 days' forage carried by each mounted man.	
3	„	1	„ „ regimental transport of the units (600 animals).
2	„	2	„ „ the 5 pack companies.
—		—	
Total	7	„	5 „

The result was 2,100 extra animals and their drivers to be fed.

Some of these drivers were dismounted, since General Kuropatkin remarked in his final instructions:—"With regard to the personnel of the transport, it will be necessary to mount them at the first opportunity, otherwise they will delay you."

A detailed account of the progress of the raid is given by the writer. Marshes, rivers, and roads were all frozen hard, allowing of free movement in every direction, but as no "4-verst" maps of the district were available the routes and halting places for the different columns composing the force had to be ascertained by questioning the natives. Only small parties of the enemy were encountered.

The pack transport throughout caused considerable trouble and delay. On the first day after accomplishing 24 miles in 12 hours, they reached the halting place about 10 p.m. On the following night it was still later when they reached camp, with the result that they could not start on the third day till 7 a.m., thus delaying the force for an hour.

The existence of supplies along the route was evident from the start, as the troops when halting for the night found in the villages provisions and forage in abundance. Consequently the numerous convoys (in all about 550 carts) which were captured conveying supplies

to the Japanese, and the supplies which were found collected for the enemy in some of the villages, were for the most part burnt.

No issue appears to have been made to the troops from the supplies carried by the pack transport until the third day, when an issue was made, not because it was needed by the troops, but with the object of lightening the loads.

On the return journey from Inkow the pack transport appears to have gone to pieces; nearly 800 animals were destroyed or abandoned, and a large percentage of the pack-saddles were so damaged as to be unfit for use.

The fate of the 80 tons of supplies with which General Mishchenko's pack transport started is of interest; 30 tons were distributed to the troops "under compulsion," 6 tons were consumed by the transport companies themselves, and the balance of 44 tons was abandoned en route. In other words, General Mishchenko's force took with them into the area raided, and abandoned there, supplies nearly equal in amount to the Japanese supplies which were destroyed during the raid.

TRAINING AND EDUCATION.

Infantry Training, 1911. (Provisional.) (Положение объ обученіи пѣхоты.) 111 pp. 12mo. St. Petersburg.

This provisional manual replaces a similar manual issued in 1901.

The commanders of military districts are to render to the Russian General Staff by the 1st October, 1914, their conclusions regarding it, based on reports from commanding officers.

The manual is divided into five parts:—

Part I.—The Training of the Recruit.

Part II.—Trained Soldiers' Exercises.

Part III.—Regimental Instructional Detachments.

Part IV.—Courses of Instruction for N.C.O's.

Part V.—Exercises for Sub-ensigns and N.C.O's.

Part I.—The Training of the Recruit.

The Russian company commander, although he receives his annual draft of recruits practically in one batch about the middle of December, has many difficulties to contend with, when he commences to train them.

In addition to their military training, he is responsible also for their elementary education and religious instruction.

That the former is necessary in the case of those recruits who are quite illiterate is evident from paragraph 43, which enjoins that the recruit before he is taught to aim, should know how to read figures, at least units and tens.

At many stations in Russia, outdoor exercises are often impossible in the winter season, and consequently elementary instruction in

skirmishing and manœuvre has to be imparted in the barrack room by means of relief-maps and sand in wooden trays.

The Russian infantry soldier serves with the colours for three years, but the value of the extra year—as compared with Western European armies—is largely discounted by the unfavourable weather conditions and to some extent unpromising material with which the Russian military instructor has to deal.

The previous manual provided for two programmes for recruits' training; a full programme lasting five months and an abridged one of six weeks' duration, to be used in case of mobilization or impending hostilities.

The present manual lays down that the training of the recruit is to last from the 14th December to the 14th April, on which date, the recruit must, under normal conditions, take his place in the ranks.

The course of training has, however, been made more progressive, so that the recruit may, in case of urgent necessity, be sufficiently advanced to join his company in the field, at the end of the first two months.

The subjects of instruction are :—

- (1) Religion.
- (2) General military knowledge, e.g., names of the different arms and units and ranks, regimental history, soldier's pay and equipment.
- (3) Discipline.
- (4) Duties in barracks.
- (5) Garrison duties (including guard).
- (6) Musketry.
- (7) Drill (squads and sections).
- (8) Manœuvre (squads and sections).
- (9) Gymnastics.
- (10) Bayonet fighting.
- (11) Reading, writing and arithmetic.

The time allotted to the first ten subjects is not to exceed six hours a day during the first month and seven hours subsequently; an increase of one hour in each case, on the time specified in the former manual.

A suggested tabular programme is given, which gives a total of 33½ hours' work a week during the first month and 39½ hours' work a week during the subsequent three months.

The battalion commander tests the recruits half-way through their course and the regimental commander at the end of it.

The *Russki Invalid* states that the above system of instruction has been on trial for the last two years in certain units in the Warsaw Military District, with excellent results.

The further instruction of the recruit continues in the ranks of the company, which, from the middle of May to the end of September takes part in the training of the summer camps and manœuvres.

Part II.—Trained Soldiers' Exercises.

From the beginning of October the former recruit, if not selected for the regimental instructional detachment (see Part III) is classed as a trained soldier and as such is exercised during the winter months with the trained soldiers of previous annual contingents. These exercises were formerly a repetition, more or less, of the recruits' course, and a lack of interest resulted. The programme of exercises has now been re-cast, so that interest may be maintained and that the trained soldier may learn the duties which he may have to perform as group-leader, patrol leader, and commander of a detached post, escort, or guard in peace and war.

Special attention is also given to those soldiers who, owing to illness or any other causes, may have missed any portion of their recruits' course, and to the men on regimental or other employ.

Instruction is also given in sanitary matters, entrenching, development of power of observation, and the use of the compass, telephone, and field-glass.

Eight men per company are taught visual signalling, and all those who have passed through or belong to the regimental instructional detachment are taught judging distance by eye and by instrument up to 3,000 paces.

Part III.—The Regimental Instructional Detachment.

The instructional detachment (*uchebnaya Komanda*) is maintained in each infantry and rifle regiment for the purpose of training selected soldiers for appointment as under-officers, i.e., N.C.O's.

Owing to the limited period of service with the colours, this training has to be short as well as thorough, in order that the men trained may serve as N.C.O's. with their unit sufficiently long to be thoroughly conversant with their duties, before passing into the reserve.

The instructional detachment is practically an independent company, commanded by a selected captain. It has a permanent instructional staff, which can be increased if necessary, together with a quartermaster serjeant, drummers and buglers, also cooks and orderlies, if the detachment occupies a separate barrack room.

The period from the 28th January to the 13th March is devoted to preparing the staff of the detachment for their instructional duties.

On the 14th March the detachment is completed by a batch of students, consisting of selected recruits and newly-joined short-term volunteers, who remain under training till the 28th November.

Formerly the instruction of recruits commenced after the summer drills, but in 1908 the experiment was made of starting it in the spring, so that those soldiers who had been through the course might be promoted to N.C.O's. at the end of their first year's service. The experiment proved a success, and the 14th March has been definitely fixed in the present manual.

The number of students is fixed annually by the regimental

commander and depends on the number of N.C.O's. who are due to pass into the reserve in the following year. It must not, however, exceed two-thirds of the establishment of N.C.O's., exclusive of sub-ensigns and re-engaged N.C.O's. Under recent Regulations the number of students had to be not less than one-half of the total establishment of N.C.O's., but it was found that the creation of the new second class of re-engaged N.C.O's. left fewer vacancies annually, which resulted in slackness on the part of the students who had no good chance of eventual promotion.

During the course of instruction, the instructional detachment is struck off regimental duties. It accompanies the regiment to the summer camp, but does not exercise with it, except during the manœuvres of all arms, when it forms a separate company.

The course is divided into two parts :—

- (a) The first period up to the 14th September is devoted to teaching the future N.C.O. all that it is necessary for him to know as a leader.
- (b) After that date attention must principally be given to training him as an instructor of young soldiers.

The subjects of instruction are :—

- (a) Religion.
- (b) Reading and writing.
- (c) Arithmetic.
- (d) Military regulations.
- (e) Interior economy.
- (f) Map-reading and sketching.
- (g) The preservation of health.
- (h) All branches of drill and manœuvre.

The hours for class work and drill, &c., are :—

From the 14th March to 30th April	...	...	6 hours a day.
„ 1st May to 31st August	...	...	8 „
„ 1st September to end of course	...	6	„

As there is no work on Saturday afternoon, Sundays, or feastdays, of which latter Russia has many, about 820 hours' work is done in the first period up to the 14th September, of which 655 are given to practical work, 95 to class work, and the remaining 30 hours to examinations. In the second period there are about 295 working hours, of which 120 are given up to musketry, field exercises and gymnastics, 140 to class work, the remaining 35 being left for periodical tests of progress and the manœuvres.

Part IV.—Courses of Instruction for N.C.O's.

Attempts have been made recently to meet the difficulty of obtaining an adequate supply of efficient N.C.O's by increasing the establishment of re-engaged N.C.O's. in each unit, of whom a certain number, both first and second class, are appointed sub-ensigns.

In order to train re-engaged N.C.O's. for appointment as sub-ensigns, courses of instruction are arranged under the orders of the divisional commander.

In the new manual the number of subjects dealt with has been limited to military subjects, arithmetic, and the Russian language. Exercises in drill, gymnastics, musketry, and with the sword and bayonet take place daily. Generally speaking the winter period is devoted to theoretical and the summer period to practical work.

There is an examination at the end of each course and those N.C.O's. who pass it are qualified, when they have the necessary service, for appointment as sub-ensigns with the prospect of promotion to officers' rank to complete units to war strength or to serve in reserve units on mobilization.

Part V.—Exercises for Sub-ensigns and N.C.O's.

As formerly, battalion commanders are responsible for these exercises, which aim at the further training of sub-ensigns and N.C.O's. as intelligent and independent leaders of the smaller units. The training of the sub-ensigns extends to the command of a company, while N.C.O's. are trained only to the command of a section.

The exercises take place for about two hours in each week during the winter months, October to April, both inclusive.

The new Russian Infantry Training Manual therefore aims, not merely at the preparation for war of the rank and file, but also at the provision of competent leaders for the smaller fire units, both in the Active Army and the Reserve, and of junior officers in the Reserve formations which will probably be created on mobilization independently of the Active Army.

Elementary Military Training. By Lieutenant-Colonel A. W. A. Pollock. 194 pp. 8vo. London, 1912. W. Clowes & Sons. 4s. net.

This book consists of a collection of "Simple Lectures," originally written for the training of the *Spectator* company in 1895, to which have been added additional chapters dealing with a variety of subjects connected with training.

In his preface the author explains that the book is intended for junior officers and expresses a hope that it may prove informing to some of them. We must, however, take leave to doubt whether a work, which contains views admittedly in opposition to the teaching of the official training manuals, can be considered the best, or even a good, guide for young officers.

TRAVEL AND TOPOGRAPHICAL.

The River Amur and its Tributaries. (Рѣка Амуръ съ его притоками какъ пути сообщенія.) By A. E. Карпов. 134 pp., illustrated. 8vo. Mansfield, St. Petersburg, 1909. Salamandra.

The information from which this useful work was compiled was collected on the spot by the author when engaged in reporting for a Russian insurance company upon the conditions under which navigation

was carried out in the basin of the Amur. The navigable tributaries of the great waterway, the Shilka, Argun, Zeya, Selemджа, Bureya, Amgun, Sungari, and Ussuri Rivers, all of which serve as important arteries of communication, are examined in detail. A good description of the main river, the upper, central, and lower Amur, is given. Details are furnished of the obstacles and aids to navigation, the depths of water available normally, the fords, periods of navigation, wharves, and distances between post or riverside stations. The shipping on the rivers is described, together with the available facilities for shipbuilding and repairing, and for wintering craft when the rivers are frozen. A usual method of salvage is to wait for the winter and repair the vessel when icebound. The book concludes with a description of the estuary of the Amur and its pilotage. Nikolaevsk is condemned as an unsuitable commercial port. Numerous statistical tables are appended.

Palestine and its Transformation. By Ellsworth Huntington. 430 pp., with illustrations and maps. 8vo. New York, 1911. Houghton Mifflin & Co. 7s. 6d.

Mr. Ellsworth Huntington is the Assistant Professor of Geography at Yale University, and in the present work has endeavoured to supplement George Adam Smith's "The Historical Geography of the Holy Land" by a work on the modern geography of Palestine and its climatic conditions, which are very generally believed to have undergone considerable modification since the days of Bible history. It certainly seems strange that whereas the routes from the valleys of Mesopotamia to Egypt and *vice versa* were formerly main arteries of commerce and trade, present day conditions may be said hardly to point to their existence. This may be no doubt due in great measure to the change of inhabitants and to the lack of care in keeping up trade routes and facilities for traffic, an example of which may be also found nowadays in connection with the inland regions of Tripoli, where localities to the far south now almost unheard of, were opened up by the Romans and traversed freely by them.

However, apart from these considerations, there is no doubt that there have been climatic changes as well, the nature of these being clearly dealt with and demonstrated by Professor Huntington in his volume, which also provides excellent maps comparing the physical features by means of relief.

From Stambul to Baghdad. (De Stambul à Baghdad.) By Hakki Bey. 112 pp., with illustrations. 4to. Paris, 1911. Ernest Leroux. 2s. 6d.

The above bears a sub-heading, "Notes by a Turkish Statesman," and is in effect a condensation, translated into French from the *Revue du Monde Musulman*, of an account of the route to Baghdad by one of the deputies for that city in the Turkish Chamber.

The route taken was a rather roundabout way by Alexandretta-Beirut-Damascus-Aleppo, thence to Deir-es-Zor and by the Euphrates to Baghdad.

There is nothing particularly new to be recounted about this route, which is well known, and therefore perhaps the most interesting portion of the book is the further journey continued to Basra, also by the Euphrates, rather than by the more usual method of the Tigris.

These later chapters and the final one on the political aspect of Basra, Koweit, and Mohammerah from a Turkish point of view are worthy of perusal at the present juncture.

Through Timbuctu and Across the Great Sahara. By Captain A. H. Haywood, F.R.G.S., Royal Artillery. 349 pp., with 45 photographs and a map. 8vo. London, 1912. Seeley. 16s.

In 1910 Captain Haywood embarked on a journey from Sierra Leone up the course of the Niger to Timbuctu; from there he traversed the Sahara to the oasis of Insalah and eventually arrived at Algiers by way of Biskra. The total length of the journey was nearly 4,000 miles, 1,560 being through the Sahara. The time taken to traverse this distance was just over six months.

In the present volume the author gives us his experiences during this remarkable journey through a portion of Africa that is little known to Englishmen. Much interest is attached to his description of Timbuctu, of the conditions in the Sahara, and of the organization of the French military posts, while considerable light is thrown on the innumerable difficulties that would attend an attempt to link up the Algerian and Nigerian railway systems.

The book is written in a pleasant, readable style; the illustrations are excellent.

MAGAZINE ARTICLES.

AERIAL NAVIGATION.

- Aeroplane Undercarriages. E., March 15, p. 356.
The Command of the Air. By W. Joynson-Hicks. N.R., April, p. 347.
The Highway of the Air and its Military Engineering Problems. By Lieutenant G. A. Taylor, A.I.C. C.M.S., March, p. 145.
Progress in Aeronautics. By Major H. Bannerman-Phillips. U.S.M. May, p. 205 ; June, p. 318.
The Employment of Flying Machines at the Manœuvres of 1911. By Lieut.-General Schleyer. O.M.Z., March, p. 383.
Military Aviation. J.S.M., March 1, p. 76.
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F. Rev.	.. Fortnightly Review ..	M.	2/6	London.
I.J.	.. Intendanski Jurnal ..	M.	*	St. Petersburg.
I.M.G.	.. Indian Medical Gazette ..	M.	1 R. 4a.	Calcutta.
I.M.T.	.. Indisch Militair Tijdschrift ..	M.	1 fr. 50	Batavia.
Inj.	.. Injeniernii Jurnal ..	M.	*	St. Petersburg.
I.R.	.. Internationale Revue (Armeen und Flotten) ..	M.	m. 3.25	Dresden.
J.A.M.S.	.. The Military Surgeon. Journal of the Assoc. of Military Surgeons ..	M.	35 c.	Carlisle, Penn.
J.A.S.	.. Journal of the African Society ..	Q.	6/-	London.
J.D.A.M.	.. Jahrbücher für die Deutsche Armee und Marine ..	M.	m. 2.50	Berlin.

Abbreviation.	Name of Newspaper or Periodical.		Price.	Place of Publication.
J.M.O.B. ..	Journal militaire Officiel	M.	*	Brussels.
J.M.S.I. ..	Journal of the Military Service Institution .	2 M.	50 c.	Governor's Island, New York.
J.M.S.S. ..	Journal of the Military Scientific Society (Russian)	Q.	1 Ro. 50 kop.	St. Petersburg.
J.R.A.M. ..	Journal of the Royal Army Medical Corps ..	M.	2/-	London.
J.S.M. ..	Journal des Sciences militaires	½ M.	*	Paris.
J.U.S.I. ..	Journal of the Royal United Service Institution	M.	2/-	London.
J.U.S.I. (N.S.W.)	Journal of the United Service Institution of New South Wales	A.	*	Sydney.
K.M. ..	Kavalleristische Monatshefte	M.	k. 2.	Vienna.
K.T.Z. ..	Kriegstechnische Zeitschrift	M.	m. 1.50	Berlin.
L. ..	Lancet	W.	/7	London.
L.A.F. ..	Comité de l'Asie française, Bulletin	M.	2.25 frs.	Paris.
L.B.M. ..	La Belgique militaire	W.	25 c.	Brussels.
L.R.I. ..	La Revue d'Infanterie	M.	2 frs.	Paris.
L.S.M. ..	Le Spectateur militaire	F.	2 frs.	Paris.
M.A.G. ..	Mittn. über Gegenstände des Art- u. Genie-Wesens	M.	*	Vienna.
M. Art. ..	Memorial de Artilleria	M.	*	Madrid.
M.B.A.R. ..	Monthly Bulletin of the Bureau of American Republics	M.	25 c.	Washington.
M.C. ..	McClure's Magazine	M.	25 c.	New York.
M.I.E. ..	Memorial de ingenieros del ejército	M.	*	Madrid.
M.P.G. ..	Mitteilungen Petermann's	M.	m. 2.	Gotha.
M.R. ..	Marine-Rundschau	M.	m. 2.	Berlin.
M.W.B. ..	Militär-Wochenblatt	½ W.	20 p.f.	Berlin.
N.A.R. ..	North American Review	M.	35 c.	New York.
N.C. ..	Nineteenth Century	M.	2/6	London.
N.D. ..	National Defence	Q.	2/6	London.
N.G.M. ..	National Geographic Magazine	M.	25 c.	Washington.
N.I.A. ..	Nation in Arms	M.	/3	London.
N.M.B. ..	Neue Militärische Blätter	W.	60 p.f.	Berlin.
N.M.T. ..	Norsk Militært Tidsskrift	M.	*	Christiania
N.R. ..	National Review	M.	2/6	London.
O.M.Z. ..	Streflehrs militärische Zeitschrift, zugleich Organ der militär-wissenschaftlichen Vereine	M.	*	Vienna.
P.J. ..	Preussische Jahrbücher	M.	m. 2.50	Berlin.
P.P.R.E. ..	Professional Papers of the Corps of Royal Engineers	V.	..	Chatham.
P.R.A.I. ..	Journal of the Royal Artillery	M.	2/6	Woolwich.
P.U.S.I. ..	Journal of the United Service Institution of India	Q.	2 R.S.	Simla.
Q.D. ..	Questions diplomatiques et coloniales ..	F.	75 c.	Paris.
Q.R. ..	Quarterly Review	Q.	6/-	London.
R.A.G. ..	Rivista di Artiglieria e Genio	M.	*	Rome.
R.C. ..	Revue de Cavalerie	M.	*	Paris.
R.d'A. ..	Revue d'Artillerie	M.	*	Paris.
R.D.D.M. ..	Revue des Deux Mondes	½ M.	3 frs.	Paris.
R. du G. ..	Revue du Génie militaire	M.	2.50 frs.	Paris.
R.E.J. ..	Royal Engineers' Journal	M.	1/6	Chatham.
R.F.E.C. ..	Revue française et l'étranger et des colonies	M.	2.50 frs.	Paris.
R.H. ..	Revue d'Histoire	M.	2 frs.	Paris.
R.I.C. ..	Revue Indo-Chinoise	F.	1.50 frs.	Hanoi.
R.I.M. ..	Revue du service de l'intendance militaire ..	M.	2 frs.	Paris.
R.M.B. ..	Revue de l'Armée belge	2 M.	*	Liège.
R.M.E. ..	Revue militaire des Armées étrangères ..	M.	1 fr.	Paris.
R.M.G. ..	Revue militaire générale	M.	2.50 frs.	Paris.
R.M.I. ..	Rivista militare italiana	M.	2 lire.	Rome.

Abbrevia- tion.	Name of Newspaper or Periodical.		Price.	Place of Publication.
R.M.L. ..	Revista militar	F.	200 reis.	Lisbon.
R.M.S. ..	Revue militaire suisse	M.	*	Lucerne.
R. of R. ..	Review of Reviews	M.	/6	London.
R.T.C. ..	Revue des Troupes Coloniales	M.	2 frs.	Paris.
S.Z.A.G. ..	Schweizerische Zeitschrift für Artillerie und Genie.. .. .	M.	*	Frauenfeld.
T.M. ' ..	Tour de Monde	W.		Paris.
U.E. ..	United Empire (Royal Colonial Institute Journal)	M.	1/-	London.
U.S.A. ..	United States Artillery Journal	2 M.	50 c.	Fort Monroe.
U.S.C. ..	United States Cavalry Association Journal..	Q.	50 c.	Fort Leaven- worth.
U.S.G. ..	United Service Gazette	W.	/6	London.
U.S.I. ..	United States Infantry Association Journal	Q.	50 c.	Washington.
U.S.M. ..	United Service Magazine (Colburn's)	M.	2/-	London.
V.R.K. ..	Vyestnik Russkoi Konnitsi	F.	*	St. Peters- burg.
V.S. ..	Voyennii Sbornik (Military Journal)	M.	*	St. Peters- burg.
V.T.H. ..	Vierteljahrshefte für Truppenführung und Heereskunde.. .. .	Q.	*	Berlin.

APPENDIX II.

LIST OF RECENT CHANGES IN THE ARMY IN INDIA.

1. India Army Order No. 61 of 1911 is reproduced below :—

“ With reference to the amendments to Army Regulations, India, Vol. II, published with India Army Order No. 647 of 1911. The titles of the various inspectors attached to the General Staff at Headquarters are—

Inspector of Cavalry.

Inspector of Royal Horse and Royal Field Artillery.

Inspector of Royal Garrison Artillery.

Inspector of Volunteers.

The Brigade Majors to the Inspector of Cavalry and the Inspector of Volunteers are now designated “ Staff officers.” The Director-General of Military Works is also *ex officio* “ Inspector of Engineers.”

2. In pursuance of the policy adopted at the Imperial Conference on defence matters of 1909, the following changes of nomenclature have been adopted in India :—

Bearer Companies to be Bearer Division.

Field Medical Store Depôt to be Advanced Depôt of Medical Stores.

General Medical Store Depôt to be Base Depôt of Medical Stores.

Field Veterinary Store Depôt to be Base Depôt of Veterinary Stores.

3. India Army Order No. 657 of 1911 is reproduced below :—

Railway transport personnel.—The following changes in the designation of Military Railway Transport personnel in war time have been approved :

Present Designation.	New Designation.
Director of Railways	Director of Railway Transport.
Deputy Director of Railways	Deputy Director of Railway Transport.
Deputy Assistant Director of Railways...	Deputy Assistant Director of Railway Transport.
Railway Concentration Officer	Railway Transport Officer.
Railway Concentration Establishment ...	Railway Transport Establishment.
Railway Concentration Personnel	Railway Transport Personnel.

4. Divisional Supply Officer and Divisional Transport Officer to be Assistant Director of Supplies and Transport respectively.

5. Staff Officer in Charge of Medical Mobilization to be Deputy-Assistant Director Medical Services (D.A.D.M.S.), Mobilization.

6. The designations of officers of the medical branch at Army Headquarters have been altered as follows :—

- (a) Principal Medical Officer His Majesty's Forces in India to become Director Medical Services, Army Headquarters, India.
- (b) Deputy Principal Medical Officer His Majesty's Forces in India to become Deputy-Director Medical Services, Army Headquarters, India.
- (c) Secretary Indian Medical Service to become Assistant Director Medical Services (Indian Service).
- (d) Secretary Royal Army Medical Corps to become Assistant Director Medical Services (British Service).
- (e) Sanitary Officer to become Assistant Director Medical Services (Sanitary).

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NOTICE.

All Communications should be addressed to—

The Editor,

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Copies of THE ARMY REVIEW are available for reference in all Officers' Reference and Mess Libraries, but no general free issue is made.

Units, officers, non-commissioned officers, and men desirous of purchasing copies can do so at the rate of 1s. post free, on application being made on Army Form L 1372 in the same manner as for other military publications. (King's Regulations, 1912, Appendix XXIII.)

I.

COMPULSORY MILITARY TRAINING IN AUSTRALIA.¹

By MAJOR THE HON. R. A. CROUCH, 56th Australian Infantry Regiment.

THE military forces of Australia have passed through three stages —the volunteer, the paid militia, and the universal compulsory system. The volunteers banded themselves together first about 1854, under the fear of foreign aggression upon a country then first discovering its great golden wealth, and sparsely occupied by a few thousands of people. In 1870 the remaining small force of Imperial Regular troops was withdrawn, and the Governments of the various States informed that, in future, the Colonies would have to provide for their own land defence, the British Navy continuing to maintain its customary maritime protection. As a result the volunteer forces were increased and permanent artillery corps established. In the year 1883 Australian defence entered into its second phase, and a paid militia force was substituted for the old volunteer system, the strength of the establishment varying from 21,000 to 25,000. The pay given to each man was 8s. a day, and 16 days' minimum service with attendance at an annual camp was required. There still remained some volunteer corps in country districts, and a number of rifle clubs with a membership of 40,000.

This state of things continued till the States federated on the first day of the present century, by which time various external conditions had arisen which forced the Commonwealth to face a position completely changed from the state of happy isolation which had previously obtained in its history.

The German occupancy of New Guinea, the Carolines, Solomon Islands, New Ireland, and Samoa; the coming into the Philippines and Hawaii of the United States; the participation of the Australian colonies in the South African War; and more particularly the growth in the Pacific of the Japanese naval and military State—

¹ Some of the figures given in this article are not quite in accord with the latest information, but on the whole the statistics are substantially correct.—
GENERAL STAFF.

brought home to Australians the fact that if they were to hold their island continent they must be prepared to defend it, and caused in their midst the ferment which resulted in the institution by large majorities in both Houses of Parliament for the first time in any British community of a system of compulsory universal naval and military training.

At that time I was a member of the Federal House, and a short extract from a speech in 1901—in which for the first time in Parliament the system was advocated—states concisely the reasons by which the electorates were afterwards influenced :—

“In a democratic community the voters are the rulers, and the right to rule should always be accompanied by the ability to take a share in the defence of the nation. Every man should be compelled to make himself perfect in the use of the rifle as a preliminary to his right to vote. A man who cannot defend himself is not a good citizen, and he has only completed his citizenship when he shows his ability to take his share in the defence of the laws that he has made.”

After much public discussion, in which the constituencies by large majorities supported the principle of universal compulsory naval and military training, in 1909 a law was passed by which every lad from 12 to 14 must undergo physical training in the schools ; from 15 to 18 to receive 16 days' annual preliminary military training in the Senior Cadets ; and from 18 to 25 to serve a minimum of 16 days, including an eight days' camp, in the naval or military forces, whichever was chosen by the recruit. In order to meet the difficulties caused by so sudden an expansion of the military forces, the system applied in its first year only to those who in January, 1911, were under the age of 18 years, the then existing militia being continued until the newly-trained men could take their place in the national defence. The whole Commonwealth was divided (except in certain sparsely populated districts) into 93 battalion areas of 800 each, to which officers and permanent instructors were appointed ; and brigade areas, the highest military commands as yet existing, were gradually developed.

Lord Kitchener was invited by the Commonwealth Government to report on the scheme, which with some modifications he approved, and assured our people that as it yearly developed with the natural increase of population, the Government proposals would safely meet the necessities and dangers with which Australia was likely to be faced. The difficulties attendant upon the institution of a new system—absolutely novel to a British community—were enormous ; but they have been surmounted with remarkably little friction, whilst with the exception of a few isolated instances the people and the trainees have entered into the work with surprising unanimity. The reason of this is probably that the men and women (equally the

voters) of the Commonwealth saw the necessity of such a universal system of defence, and having recognised that, voted for its adoption, and now heartily support it. There have been a few protests by parents who object to compulsion, by others whose consciences are so tender that they prefer others to make public sacrifices on their behalf, and on the part of some of the lads a resentment at unaccustomed discipline and loss of previously enjoyed leisure and amusement. In some very few cases parents have been fined, and in other cases lads have had to face civil courts for neglect of military duty; but when it is remembered that the Australian youth is imbued with the feeling of social equality, and that reverence for superiors is not a particularly prominent national trait, the response to the national law has been remarkably hearty and sympathetic. Perhaps the prevailing democratic spirit is one of the main causes of this, as to rule is to serve.

There was also at first a certain amount of objection amongst that fringe of society which has socialistic and revolutionary aims, but the great mass of the working classes heartily support the defence legislation. As an example, a vigorous minority amongst the mining population of Broken Hill (a largely socialistic community) tried to get the miners' sons to offer a passive resistance to the national scheme, but upon a ballot being taken by the Miners' Association its members gave a large majority in favour of retaining the Act.

In January of this year 179,028 senior cadets were registered, of whom 88,525 are in training. The balance are accounted for as medically unfit or exempted for special reasons; but the bulk of the absentees are found to live outside the training areas, or exempted because, with Australia's long distances, it has been found impossible at present to provide instructors within convenient reach of all the country districts.

Of the junior cadets, 46,505 have been medically examined, of whom 45,347 are classed as medically fit.

In February of this year the preliminary registrations for the 1894 quota—that is, those who are now 18 years of age and will pass into the militia ranks—showed the following results:—

	Registra- tions.	Medically examined.	Medically fit and con- ditionally fit.	Number liable for training.
Queensland	5,545	1,838	1,493	1,493
New South Wales	12,624	6,123	5,175	5,175
Victoria... ..	10,820	4,996	4,170	4,170
South Australia	3,485	1,177	1,037	1,037
West Australia	1,615	627	556	556
Tasmania	1,400	617	522	522
Total	35,489	15,378	12,953	12,953

The percentage of those examined who are fit or conditionally fit is 84·2, while the number unfit or temporarily unfit is only 2,425. The percentage of unfit or temporarily unfit is 15·7. Exemptions to the number of 15,936 have been granted in the training areas. The number remaining to be examined medically or who are exempt is 6,611.

Almost the whole of the time since the passing of the Act has been occupied in evolving the scheme, the earlier months calling for registrations and medical examinations, while the latter half was occupied in imparting to the cadets those minor instructions on which all great schemes are built.

Every effort is made that the work shall be attractive. In musketry the cadets at once took a lively interest. Amongst the officers in charge of areas are several of the most skilled marksmen in Australia, enthusiasts of the keenest type, and who may be relied on to see that their ardour is communicated to all with whom they come in contact.

Already local committees are being formed in every part of the Commonwealth for the purpose of carrying out a series of competitions. The scheme of competitions includes rifle shooting, inspection of arms, equipment, and turn-out, physical training, skirmishing, and march past. There will be battalion, district, and Commonwealth tests, and winning teams will meet each other in the next higher grade. Gold medals are to be awarded to the Commonwealth champion team, silver medals to the district and brigade champions, and badges to battalion champions. The decorations may be worn by successful competitors on all ceremonial occasions, and the champion team's battalion will hold a banner for one year. Other military sports are also arranged. Travelling expenses, quarters, and rations for competing teams are provided free. The latest Imperial drill book would seem to indicate that most of ceremonial exercises are about to be cut out of the British soldier's training. The work of Australia's cadets will also be of a utilitarian character, but it is likely that at least portion of the old "display" drill will be allowed to remain.

Boys at present serving with the cadets will not go into camp until they are drafted into the citizen forces, so that none of those now in the ranks will be under canvas until about Easter next year. In July of this year about 20,000 senior cadets who have attained their eighteenth year passed into the citizen forces. They were submitted to a searching medical examination, in which physical attributes, height, chest measurements, and other qualifications played an important part. Those who "survived" the ordeal were attached to the existing military units in each State, and will receive payment for their services. This process will be repeated annually, and as the existing corps will not be recruited from any other sources, within a few years they will be entirely composed of those who have

come under the compulsory scheme. The period of service in the citizen forces is between the ages of 18 and 26, so that those who pass from the senior cadets complete their term by July, 1920. As they drop out the men will be encouraged to become members of civilian rifle clubs, in order that they may continue to handle the service weapon, and be in constant touch with defence matters.

Up to date 179,028 boys have been registered in the training areas, and only 6·7 per cent. of those medically examined have been declared unfit for service, though over 57,000 exemptions have been granted. The total number of youths liable for training is 93,457, of whom 89,895 are at present actually being instructed. The training areas as designed contained 90 per cent. of the population of Australia. A glance at the map issued by the Defence Department shows that these are confined almost exclusively to the eastern and southern edge of the continent, with a small patch on the west. The remainder of the territory was exempted on account of its sparse population and difficulty of communication.

Enrolment has called for a great deal of tact by the area officers. Experience shows that the strict, yet strictly fair, control appeals most strongly to the average youth in his "teens." As a rule, however, the youths are orderly and enthusiastic, ready to help, and anxious to do their best. In many cases they are so keenly interested in the movement as to undertake the clerical work associated with the enrolment of brother recruits. Failure to register involves a fine of £10, but there has been little necessity to resort to this penal clause so far. Parents and guardians are personally responsible that every boy who reaches the age of 14 years before the 1st January must be enrolled in the cadets.

One clause of the Act also largely helped the recruiting. It is provided that no lad who neglects his national military duty will be eligible for employment in the Commonwealth public service, a great deprivation in a country where the State has so many avenues of direct agencies and employment, a provision which also has the effect of marking the non-recruiter as a national defaulter.

Area officers are required to notify times and places of medical inspection by notices posted at post offices. Cadets residing within exempt areas or at a distance of over 3 miles from any place of training may be temporarily exempted from attending for medical inspection.

The prescribed training for junior cadets is :—

- (a) Physical training, to be carried out on each school-day for not less than 15 minutes.
- (b) Elementary marching drill.
- (c) Miniature rifle shooting.
- (d) Swimming.
- (e) Running exercises in organized games.
- (f) First aid.

Area officers are to arrange for the physical training of junior cadets not attending school, but in such a way as not to interfere with the ordinary hours of employment of such boys. The training will consist of evening drills and drills on weekly half-holidays.

All junior cadets are to be inspected annually by the district commandant. During the first year the training of all schools in which the prescribed courses are followed will be accepted as sufficient. Boys not attending school will be required to attend for training under military instructors.

An allowance may be paid each year to headmasters of approved schools in connection with cadet training. In the case of schools the allowance may be spent on rifle ranges, ammunition, printing, &c. Lads not attending school are to get free ammunition.

Instructors of physical training are paid as follows:—Chief instructor (honorary major), £450 to £500; instructors (captain), £325 to £400; assistant instructors (lieutenant), £250 to £300 a year.

The instructions with relation to the enrolment and training of the younger boys issued as general orders, set out that it is desirable that all boys at school should receive physical training suitable to their years and strength, but the statutory requirements apply only to boys between the ages of 12 and 14 years. The training of the junior cadets begins on the first day of July in the year in which the boys reach the age of 12 years, and continues for two years.

Full details as to the care of arms and charges for repair and replacement are set out, and copies of these are provided for all schools. In addition to this, copies of a syllabus of physical exercises are provided free to all schoolmasters interested in the training of junior cadets. The syllabus is based on the physical training system of the British Army, modified for application to young boys.

Gratifying offers of assistance have been received from the schoolmasters, who appear to be taking the matter up in a cordial spirit. The text-book of physical training prescribed has been adopted at a conference of educational and military experts.

Australia has not escaped the usual trouble which most movements have to suffer in their initial stages where the services of medical men have to be relied on, and dissatisfaction has been expressed by members of the medical profession at the terms offered by the Defence Department for the medical examination of youths who are liable for compulsory trainage under the Defence Bill. The Medical Defence Association considered and condemned the terms offered by the Government, viz., £65 per annum for each defence area, as insufficient. As a result a circular was issued to members of the medical profession suggesting that they should not apply for appointment. Many doctors complied with this request, but others made applications for appointments and accepted them. The profession is now watching

with interest to see whether the Government will secure enough doctors to carry out the examinations within a reasonable time.

Some members of the profession who abstained from applying state that the offer of £65 per area is far too low for the work to be done, as an area involves the examination of between 800 and 900 persons. In the case of a district in which 900 youths had to be examined the payment would work out at the rate of less than 2s. a head, and naturally the examinations would be very speedily made with a rapid examination of the stethoscope and the taking of weights and measurements. They thought, however, that there should be a proper payment for a proper examination.

The question of clothing the cadets has been carefully considered. Cord breeches cost 15s., hat with band and chin-strap 3s. 9d., numerals 2d., puttees 3s. 6d., shirt 10s., belt 1s. 8d., pouch 2s. 2d., sling 1s. 2d., or a total of £1 17s. 5d. for each boy. Add to this the cost of a Wesley-Richards rifle, and the expense account begins to soar towards a quarter of a million. The uniforms are similar to the fighting kit of the American Army, and it would seem that the American fashionable fullness of cut has also been copied, for as a rule there is room for two boys in each suit.

The practical effect of the new system upon the youth of the population has already been remarkable. It is clearing up the street corners of the city, it is cutting off the supply of loafing hoodlums of the slum districts, and it is vitalising the country districts, by giving to lives of dull drudgery new interests and ambition.

Three area officers have been good enough to write me necessarily short impressions of their 18 months' work. They have battalions in a factory district, a seaside suburb, and in a country dairying area.

FROM AN AREA OFFICER IN A METROPOLITAN FACTORY DISTRICT.

"As requested by you, I will give you an idea of the lads I have to deal with in this area. In the first place there are two distinct classes, one being the sort that enjoyed congregating at street corners, smoking cigarettes, insulting passers-by, and generally making themselves a nuisance, and at first I had a great difficulty in trying to teach them the meaning of discipline; but by using tact and occasionally bullying and threatening them, I managed to instil into their heads that they were not by any means to be allowed to do as they liked when on parade. On the first parade a few of them tried to organize cliques and caused us a lot of trouble, but after finding out who the ringleaders were I had them on the carpet and gave them to understand that they were up against an Act of Parliament, and told them that if they caused the least bit of trouble I would have them before the local bench. I also read to them the regulations on the matter, and pointed out that it was a duty they owed their country to be trained for its defence. They apparently took this advice to heart,

and I have not had occasion except in one case to crime anyone, and I am pleased to say that they are now taking a very keen interest in the work.

"Most of the lads, both in this and other areas, are very deficient in home discipline. Their parents do not seem to have control of them, and as to manners, well I might say they do not know the meaning of the word. Mind you I do not think it is the fault of the boys, but of their parents. They (the boys) are allowed to roam the streets at night, and it seemed to me that it was for the want of something to do. Well, they have got the something at last, and I am glad to say that it has been often remarked to me that, for the little time they have been in training, a great improvement has been noticed in their bearing and manners both on and off parade and in the streets.

"As to the other class, most of them have had training at the State schools as junior cadets, and one could not help noticing them on parade, the way they set about doing anything they had to do, and I can assure you that these lads were a great help to us in steadying the others. I was very fortunate in having a few with drill certificates, and they have been promoted as N.C.O's, and some of them handle their sections as well as any N.C.O. I have ever had under my command. There is a great future before some of these lads, a few of whom are now at the present time undergoing examination for second lieutenants.

"I might add that the 18-year old men who are to be drafted into the militia this coming month are a well set up lot of youths, and the training they have received will be a great help to the officers of militia units when they get hold of them."

FROM AN OFFICER IN A NEW SOUTH WALES DAIRYING
DISTRICT.

"I am glad to be able to write you as to this cadet area. You know that here the worship of the cow is universal—milking early and late is the universal drudgery—holidays and Sundays the work has to be done, and it has entered into the lives of many of the farmers' sons and made their existence one of dreary monotony and care. The consequence was that they, or at least the most enterprising of them, took the first chance of escape to the variety of city life. The universal training has changed all that, and I only wished the Government would extend the areas so as to cover all country districts, however small. Life has now become a pleasure to these bucolic youths, and their keenness and interest, some walking 3 miles regularly to parades, is not only wonderful, but to those who know the weary round of their lives, touching. The last 18 months have simply awakened the country side, and have done more to stop the drainage from country to town than anything I know. The change in the yokels themselves

has been marvellous, and has developed quite new faculties. The drill, of course, is not up to our old 6th Regiment standard, but it has livened them up wonderfully. I believe they are better milkers in consequence. There is no doubt they are better men in every way. One lad surprised me by questions the other day about Lee and the campaign in Virginia, which shows me he has been reading books which I have not yet had time to touch. I did not give myself away, but will have to mind my p's and q's to keep ahead. I did not imagine military training would do so much for a district. The native slouch has gone from the younger lads, and many of the older men wish they could join. P.S.—The girls also are in favour of the uniform."

FROM AN AREA OFFICER IN A SHIPPING DISTRICT.

"I was told when I took over this area I was up against a hard task, and that it would break me. For my first three months I thought it might, but now I am glad to say I have broken it, and without one appeal to a Civil Court. As you know, the cadets here are the sons of wharf labourers, stevedores, sailors, fishermen, and factory hands, and at first most of them regarded me as an enemy—they were a most unruly, untamed lot. Now they all regard any insubordination as an attack on the company, and are really a very willing lot. I disregarded the regulations a bit last year, bought a football, and used to give them 20 minutes' football sandwiched between two hours of drill, and even now do so occasionally; but was surprised the other day during some scouting training to hear some say they would rather go on than kick a football. Their military work is encouraging the man in them. Drill appeals to their grown-up instincts, and football is a thing for 'kids.' The Mayor and several of the parsons have told me the training is doing an immense amount of good in the town, more courtesy in the streets, less horse-play, and better manners; whilst from the way a lad carries himself one can easily pick out the trainees in a crowd.

"As for the N.C.O's. I let them select themselves at first, and called for volunteers only, thinking that the desire to rise showed some qualifications for it. I wanted 84 for the six companies, and 200 offered. These came down to about 140; the stupid element soon eliminated itself. The rest attended regularly scores of extra parades, and 107 passed. There are a fine lot of willing men, and I need fear nothing in this area in the future. I have lived in P—17 years, and the change in the last 18 months in the lads of the place through the universal training has just been marvellous. It has verged on the miraculous. Drill has transformed a lot of hoodlums into a fine body of young men."

The national defence scheme may be divided into two parts—the first providing for the training of cadets, and the second for the

organization of the new militia or citizen forces. The training has been proceeding for 18 months, and the development of the scheme has now reached the stage at which its second part has to be brought into operation. The training regulations lay down the lines on which the new army is to be conducted. They would be interesting on this account alone, but they are made additionally noteworthy by the fact that they contemplate procedure new in the history of military defence, and changes—certainly sweeping—so far as existing militia institutions are concerned.

The Defence Act provides for the training of males between the ages of 14 to 26 years, either in the senior cadets or in the militia. Every year as boys reach or near their fourteenth birthday they have to register, and as batches come in at the bottom, so other batches on top reach the age of 18 years, and qualify for graduation from the cadet stage and admittance into the citizen force. The first of the 18-year old cadets were transferred in July of this year. The basis of the citizen forces, however, will be the seasoned members of existing infantry regiments, who are to be distributed amongst the new military training areas. The Australian infantry regiments are to lose their present organization, and are to be drafted in companies over the areas. It is one of the unfortunate features of the new scheme that old-established regiments, with cherished associations for men who by their enthusiasm kept the militia movement alive, should have to go. The compulsory trained cadet, however, has come to stay, and the authorities say of the system which has brought him into existence that it cannot in its development pay regard to the crop of sentimental attachments that have sprung up around the old system that is being supplanted.

Into the making of each new battalion there will go these infantry companies, and drafts of senior cadets who have reached the age of 18 years. It is estimated that every year 20,000 cadets will pass on into the citizen forces. While the number of young trainees will be a constantly increasing one, the number of infantrymen, members of the existing corps, will gradually diminish, because as the terms for which they have enlisted expire they will drop out. When the first batch of trainees who enter the new militia reach the age of 25 years—that is, in seven years' time—the force should have the war establishment of 120,000 that was advocated by Lord Kitchener.

The Commonwealth Defence Department has recently issued its new regulations for the control of the new levies who, having now reached the age of 18 years, pass into the militia. Some of them are decidedly novel, particularly those in regard to examinations and promotions, and are intended to graft the democratic spirit of the Australian people on to the necessarily strict discipline of military control.

The most drastic change introduced is that which applies to

examinations and promotion of officers and warrant and non-commissioned officers. The method of promotion in all ranks will be by practical and, as far as possible, oral examinations. The only written work to be demanded of candidates will be such as they require to carry out the duties of the rank for which they are being tested. All examinations shall be competitive as well as qualifying. No soldier shall be promoted to non-commissioned rank until he has qualified by examination. "For the first time in the history of military defence anywhere," is the criticism of a military officer of great experience, "the method of promotion in all ranks is to be by examination. Under the system at present in force in Australia and most other places promotions are recommended by the commanding officer. It is simply a matter of selection. After the recommendation a provisional commission is given without examination, and the new officer has afterwards to pass a qualifying examination in which he has to obtain a certain minimum of marks. This system does not ensure the appointment of the best men. Under the new defence scheme, however, when all the young men will be in training and the bulk of them will naturally want promotion, how otherwise could officers be selected than by competitive examination? This method further will ensure the appointment of officers with the best brains. We do not want the men who can make the best show with their brains on paper, and on that account it is stipulated that the examinations are to be practical and, as far as possible, oral. What we want is a man who can stand a test in front of a squad on a field, a man who will face the examiners just as he may one day have to face an enemy."

Privates may compete for promotion to corporal; corporals may compete for promotion to sergeants; sergeants may compete for promotion to colour-sergeant and sergeant-major; colour-sergeants, sergeants-major, and quartermaster-sergeants may compete for promotion to warrant officer; lance-sergeants, sergeants, and all N.C.O's. above that rank and warrant officers may compete for promotion to lieutenant; lieutenants with two and a-half years' service as such may compete for promotion to the rank of captain; captains with one and a-half years' service as such may compete for promotion to the rank of major.

Candidates in all examinations who secure the highest aggregate of marks are entitled to priority in promotion. The existing establishment of all arms of the militia provides for 1,890 officers and 5,068 N.C.O's. There will be required 2,362 officers and 6,915 N.C.O's., an increase of 472 officers and 1,847 N.C.O's. respectively, and in the following three or four years a corresponding proportionate increase. It is hoped that next year nearly the whole of the vacancies will be filled by the promotion of those now serving who qualify themselves for the positions.

MEDICAL EXAMINATIONS.

In addition to the usual terms used in medical examinations—viz., fit, temporarily unfit, unfit—a new term is introduced, “conditionally fit.”

All armies prescribe a minimum standard of classification for physical fitness, as it is recognised that unless a man is likely to be of sufficient physical strength to undergo the strenuous requirements of a campaign, he is worse than useless. When he becomes unfit provision has to be made for his care and comfort which otherwise might be devoted to the care of those wounded in battle. It is recognised, however, that in a scheme of universal training there will be many who, while they might be below the minimum standard in height or chest measurement or whose eyesight may be only slightly defective, are otherwise in a perfect physical condition.

To provide for those who do not reach the standard the term “conditionally fit” is introduced, and will apply to those who are 5 feet 3 inches in height with a minimum chest girth fully expanded of 32 inches, as well as to all whose eyesight is slightly defective. Such persons will be trained for whom employment can be found in Departmental Corps, or as drivers for the second line of transport of all arms, or in clerical duties. Those for whom such employment cannot be found will be granted exemption.

RATES OF PAY.

For all officers and N.C.O's. of and above the rank of corporal the existing rates of pay will be continued, also for all existing members of militia forces, until expiry of their term of enlistment.

This is at the present time 8s. per day of six hours for privates, with a proportionate increase for officer and N.C.O's. rank.

Privates will in future be known as “recruits” in the first year of service, and the daily rate of pay will be 3s., the total annual amount which can be earned as such being £3 15s. for 25 days annually in the artillery and engineers, and £2 8s. for 16 days annually in the other arms. In the second and subsequent years the daily rate of pay of privates will be 4s., the annual amount being £5 in the artillery and engineers, and £3 4s. in the other arms.

The daily rates of pay for other ranks are :—

Shoeing smiths and artificers	£0	5	0
Second corporals and bombardiers	0	8	6
Corporals	0	9	0
Sergeants	0	10	0
Company quartermaster-sergeants	0	10	6
Company sergeant-majors and colour-sergeants ..	0	11	0
Brigade and regimental sergeant-majors, quartermaster-sergeants, and warrant officers ..	0	12	0

Lieutenants	..	..	..	..	..	£0 15 0
Captains	..	..	..	..	..	1 2 6
Majors	..	..	..	..	..	1 10 0
Lieutenant-colonels	..	..	..	..	..	1 17 6
Colonels or brigadiers	..	..	..	..	..	2 5 0

In order to meet the difficulties of the married man resulting from compulsory parades and consequent cessation of ordinary employment, provision is also made for an additional allowance to married members receiving less than 8s. a day for attendance at camps as follows :—

				8-Day Camp.	17-day Camp.
(a) For wife (living at home)	..	..	..	10s.	20s.
(b) For each child	..	..	..	5s.	10s.

A similar allowance as in (a) shall be paid to a soldier who is the sole support of a widowed mother. The higher rates of pay for officers and N.C.O's. are intended to include remuneration for the extra duties of the rank in connection with attendance at schools of instruction, staff or regimental tours, classes, and administrative work.

DISCIPLINE.

What must be aimed at is that high state of discipline which springs from a military system administered with impartiality and judgment, so as to induce in all ranks a feeling of duty and the assurance that while no offence will be passed over, no offender will be unjustly dealt with.

In order to prevent statutory service from becoming a hardship, it is necessary that no violence should be offered in the religious and moral convictions of the men, and Commanding Officers are required to ensure this.

LIQUOR AND CIGARETTES.

Several regulations refer to the prohibition of intoxicating and spirituous liquors in camps and cantéens. The Act prohibits the possession or consumption of liquor during training, and a breach of the regulations thereon is to be treated as a serious offence. The site chosen for a camp shall not be within a short distance of any place at which intoxicating or spirituous liquors can be obtained. So careful have the Defence Department been to meet the strong temperance feelings prevalent in Australia, that it is even provided that the issue and consumption of liquor for medical purposes shall be carried out in such a manner that no one who refuses the issue shall be subject to ridicule, and no issue shall be made to persons under 21 years of age whose parents have notified the Commanding Officer in writing that they so desire.

The regulations also prescribe that in cases of severe weather or excessive fatigue an extra issue of coffee, tea, or cocoa and sugar should be made to the troops rather than liquor. No cigarettes or materials for making them shall be sold or supplied in any canteen, and no member of the citizen forces shall have such articles in his possession at any time when on duty or during any camp.

This is much more stringent than the rules at Aldershot, which prohibit the use of cigarettes only when on parade. The effect as I saw it there in 1911 was that, whether from love of the prohibited or the cheapness of the material, there seemed an abnormal use of cigarettes as soon as a parade was dismissed.

UNIFORMS.

All uniforms, including greatcoats, hats, caps, puttees, leggings, boots, and similar articles, will be supplied free to all ranks of the citizen forces.

The various arms of the force will wear a distinguishing coloured band round the hat. In addition, officers and N.C.O's. of and above the rank of sergeant will be provided with tunics and trousers.

Mounted services will wear leggings, and all dismounted services will wear puttees. The usual accoutrements and equipment worn by the militia forces will be issued to the trainees on their transfer from the senior cadets.

COMPETITIONS.

With a view to the encouragement of voluntary effort in the attainment of a high standard of training, provision is made for annual military competitions on similar lines to that already adopted for senior cadets, regimental series, brigade series, district series, and Commonwealth championships.

Badges or medals will be issued to the best teams in the various series, and gold medals to the Commonwealth champion team.

ENROLMENT.

Excepting in the light horse, the present system of voluntary enlistment will absolutely cease, so that those younger men of the age of 18 years and upwards who desire any military service, unless already in the militia, cannot enrol.

ORGANIZATION.

The present has been recognised as an opportune time for the adoption of the recommendation of the Sub-Conference on Imperial Defence of 1909, that the organization of the Overseas Dominions should be remodelled as far as possible on that of the Imperial Regular Army.

Hitherto the Australian organization has been in the form of light horse brigades and mixed infantry brigades, with their respective

quotas of auxiliary arms attached, a system which has proved of great service in training a force where the brigade has usually been the largest body under one command. In future the light horse brigades of Australia will be organized on exactly similar lines to the Imperial mounted brigades, and instead of consisting of three light horse regiments each of four squadrons, as at present, they will be three light horse regiments each of three squadrons. The establishment of each will be considerably increased.

One new brigade will be immediately formed in South Australia, where there are at present two regiments each of four squadrons. By raising one new squadron and reorganizing the existing regiments there will be three regiments each of three squadrons. Later on one additional brigade will be formed in Victoria and another in New South Wales, making eight altogether.

The infantry will be organized purely as infantry brigades, each consisting of brigade headquarters and four infantry battalions, instead of the mixed infantry brigades, of which there are at present three. In the new financial year three new brigades will be formed, and when the scheme has reached its full development in 1919 there will be 23. The auxiliary arms, Field Artillery, Engineers, Signal Services, Army Service Corps, and Army Medical Corps will be organized with a view eventually for the requirements of infantry divisions.

AUGMENTATION.

In light horse regiments, in addition to the enrolment of youths liable for training under the Act, the present voluntary method of enrolment will also be continued. The reason for this is that to a very considerable extent the operation of the obligatory sections of the Act is at present restricted to the cities and the largest of the country towns. As the system develops it will be possible later on to extend obligatory training to the smaller towns.

In the artillery and engineers, the requirements of which are 25 days annually, made up of 17 days' camp and eight days' (or their equivalent in half-days and night drills) home training, in the first instance voluntary enrolment will be permitted from those liable for service. If too many volunteer, brigade majors will select the most suitable.

In future the signallers will be included in the engineers' branch, and those enrolled for such will be required for 25 days' annual training. The signal service will undergo considerable reorganization.

The infantry, which will form the bulk of the force, will be formed eventually into 93 battalions, one each in the 93 battalion areas into which the Commonwealth has been divided. At present there are 28 infantry units, the majority being eight-company battalions; but there are several smaller units, consisting of six, five, four, three, and two companies.

At first provision will be made for 45 infantry units, an increase of 17. The normal method which will be adopted, and which will last for three years, is to group two battalion areas together providing 300 infantry recruits (150 from each battalion area), and with four companies of an existing regiment to form a new infantry battalion of six companies.

In 1913-14 and 1914-15 these will each be increased to eight companies, and in the fourth year (1915-16) each will be again expanded to form two separate battalions.

In the field artillery four new batteries will be formed immediately, and there will be a proportionate increase in this arm in each succeeding year. For the present there will not be any increase in the number of companies of garrison artillery and electric engineers, but each company will be augmented with a definite annual quota of recruits. The Army Service Corps will be reorganized into light horse companies and infantry companies instead of the light horse and infantry transport and supply columns at present existing, and they also will be increased in strength by the transfers from the senior cadets.

There will be a considerable increase in the establishments of the light horse and infantry field ambulance of the Army Medical Corps, to afford an opportunity for the training of those persons who have conscientious objections to bearing arms.

Such persons will not be permitted to escape training, but they will be given the opportunity to train as non-combatants. Where ambulances of the Army Medical Corps are not formed these persons will be trained as regimental stretcher-bearers for infantry battalions.

INDIVIDUALS NOW SERVING.

Generally the establishment of officers and N.C.O's. will be borne at war strength.

For the new six-company battalions there will be required 1 lieutenant-colonel, 2 majors, 5 captains, 14 lieutenants, 1 regimental sergeant-major, 1 regimental quartermaster-sergeant, 3 staff-sergeants, 6 colour-sergeants, 24 sergeants, and 26 corporals, a total of 83 officers and N.C.O's., an increase of 39.

The new scheme will provide for the immediate promotion of no fewer than 75 privates in each existing regiment of infantry. In the next three years a proportionate increase will take place on these units being formed into eight-company battalions, and in the fourth year a further increase will be necessary on the expansion of each battalion to form two battalions.

For the first two or three years promotions generally will be made from those now serving, as they are men of more mature age, and they will form a good stiffening for the younger men coming from the senior cadets. There will be plenty of scope for promotion when additional battalions are formed in four years' time, besides which,

as they require to serve seven years, they must expect to serve the first two or three years in the ranks.

NATIONAL REGIMENTS.

One of the difficulties which had to be met in the new organization was the existence of regiments founded on nationalities, such as Scottish regiments, Highland kilted infantry, Irish and Welsh rifles, corps of English-born, and Australian battalions, all appealing to sectional influences, and noted rather for display than for training and discipline. As the method adopted for the new organization is founded on a territorial basis, the new scheme required that those liable for training should be enrolled in the units raised in the localities in which they reside.

This is the scheme recommended by Lord Kitchener, who approved of the division of the Commonwealth into battalion and training areas. Although in this scheme there may be no room in the future for national regiments as such, Australia still needs the services of the members of these units.

These corps will be allotted to brigade and battalion areas, from which they will receive annual quotas of transfers from the senior cadets in the same manner as other infantry units. The definite battalion or brigade area will be augmented by those liable for training in that area.

Such is a brief outline of the Australian defence scheme as it exists, and as it is proposed that it shall develop. It is an earnest attempt to adapt the democratic spirit of the British race to the requirements of a military age. As a defence scheme it is undoubtedly incomplete—the time of training is too limited. But it is a step in the right direction, even if only for its beneficial effect upon the physical development of young Australia. Its effect on the population generally, the men of the future, will be incalculable. The military life develops discipline, organization, orderliness, and many manly and brotherly qualities. It is in any case a self-respecting and almost self-governing country's best effort to provide for its own self-defence, and to keep its shores inviolate.

II.

OUR ARMY SYSTEM, IN THEORY AND PRACTICE.¹

By BRIGADIER-GENERAL G. F. ELLISON, C.B.

I CAN find no better preface to the remarks I venture to address to you this morning than two quotations bearing directly on causes which have influenced profoundly the growth of our Army system during more than two centuries. The first of these quotations is taken from that most interesting and invaluable work, Mr. Fortescue's *History of the British Army*. Of military domination under The Commonwealth he writes as follows:—

“The major-generals have not been forgotten by the country. The memory of their dictatorship burned itself deep into the heart of the nation, and even now, after two centuries and a half, the vengeance of the nation upon the soldier remains insatiate and insatiable.”

The second quotation comes from the Report of the Esher Committee and reads thus:—

“The entire system of War Office finance, which has been built up during many years, and has its origin in a distant past, is based on the assumption that all military officers are necessarily spendthrifts, and that their actions must be controlled in gross and in detail by civilians. This theory is largely responsible for the unreadiness for war which has been frequently exhibited, as well as for reckless and wasteful expenditure.”

There is certainly this much truth in these statements, that the military settlement on a constitutional basis arrived at between William III and his Parliament was actuated, at any rate as far as Parliament was concerned, both by fear of a standing army as a direct threat to the people's liberty as well as by doubts as to the honesty in money matters of everyone, soldier and civilian, who was concerned with Army administration.

¹ A lecture delivered at Malta on May 18th, 1912.

Under Charles II the peculation and the misappropriation of public money were alike deplorable. "Every civilian of the military departments," says Mr. Fortescue, "hastened to make money at the expense of the officers, and every officer to enrich himself at the cost of the men." Nor did this sordid state of affairs cease with the death of the Merry Monarch. William, we are told, despaired of finding an honest man in all England.

For financial reasons alone, therefore, Parliament was forced to aim at getting a much more stringent control over public expenditure than it had exercised previously. Broadly, what the House of Commons had to ensure was—

- (1) That the money it voted was spent solely for the purpose for which it was voted.
- (2) That it was honestly spent.
- (3) That it was properly accounted for and audited.

The machinery set up for attaining these objects will be described later.

Parliamentary control over military expenditure—in fact, over all State expenditure—is a fact beyond cavil or argument. Not a soldier, I am certain, wishes to see that control diminished in the slightest degree. The only matter that concerns us to inquire into is whether Parliamentary control necessarily spells military inefficiency.

I wish at the outset to express my profound conviction that such is not the case. On the contrary, I believe that the main principle underlying the constitutional settlement of William III's reign is beneficial, not only politically and for reasons of public honesty, but from the purely military standpoint as well. I shall endeavour to demonstrate this morning that it was through the application of this principle, not owing to any unsoundness in the principle itself, that military progress was hindered in this country, and that England remained in a chronic state of unreadiness for war.

The great principle accepted by Crown and Parliament, as a result of the revolution of 1688, was that the executive command of the Army and its business administration were distinct functions which could be, and in future should be, dealt with separately and by different sets of officials. The executive command of the Army must, it was generally admitted, be vested in the Crown. On the other hand, those engaged in administering the Army were, in all matters of finance, to derive their authority from, and to be responsible to, Parliament. Never before in our history, probably in all history, had such a practical divorce of command from administrative powers been accepted and acted on as a principle.

Hitherto the efficiency, the establishment and the organization of the military forces had depended mainly on the will and the capacity of the individual ruler. Thus the names of Henry II, Edward I, the Black Prince, Henry V, and Cromwell stand out in the past as

the founders of England's military power. These men exercised in a complete sense powers both of command and of administration over their forces.

From 1688 onwards the line of demarcation between these two categories of functions must be clearly and constantly kept in view. On one side of the line are, or should be, found individuals representing military interests pure and simple; on the other side individuals personifying administrative interests. These two bodies are not merely divided from one another, but in the nature of things their interests are mutually antagonistic. Each group "acts as an independent check on the other, the one to secure that efficiency is not impaired by undue economy, the other to see that efficiency is obtained without unnecessary expenditure." Here we have enforced as a principle the very theory on which, according to Lord Palmerston, the British Constitution has been built up.

"The principle," he says, "on which the public service has been constituted, has been to make one department a check and a control over another." And again, "The theory of the Constitution consists in checks, in oppositions, one part bearing up and controlling another."

There exists, and in the nature of things there must exist, a certain clash of interests as between the man whose business it is to train an army and use it in war, and the man or men who have to find the money for producing the military machine. Both in peace and in war the commander of troops and the administrator are bound to regard things from a somewhat different standpoint. Let it not be thought, however, that this natural and inevitable clash of interests tends necessarily to produce military weakness and inefficiency. In point of fact, the tendency can be shown to be in exactly the opposite direction.

Great military authorities have clearly and unmistakably approved of this principle of distinguishing between the soldier's and the administrator's functions. Lord Hardinge thus expressed himself on the subject:—

"The separation between finance and discipline has brought the expenditure of the Army into the House of Commons, and has kept the discipline and management of the Army in the King's hands and out of the House of Commons, and this, in my view, is as it ought to be."

Again, the Duke of Wellington used the well-known formula that the commander of troops "has and can have nothing whatever to say to finance!" "The Commander-in-Chief," he added, "has no power to incur any expense whatever, and considering who are likely to be Commanders-in-Chief, I do not think it would be an economical arrangement to put the power of incurring expense in their hands."

Further instances without number can be quoted showing how the combined efforts of the practised administrator and the skilled soldier

have produced the happiest results. Under Louis XIV a statesman like Louvois fashioned the instrument which Turenne and Condé used with so great effect in the field. Later, in Republican France, the civilian Carnot in his office organized the victories which Dumouriez and Pichegru, Jourdan and Moreau, reaped on the frontiers.

But it has been reserved for modern Prussia to furnish the really classic illustration of the advantages to be gained from distinguishing clearly between purely military and purely administrative functions. In 1821 Prussia took a leaf out of our book, and a Royal Decree was issued withdrawing from the War Minister all duties pertaining to the higher command in war, and definitely placing these duties under an independent and co-equal Chief of the General Staff. In commenting on this Decree, von Schellendorf writes as follows:—"We may regard this circumstance as one of the most important causes of the splendid achievements of the General Staff in recent campaigns." Moltke and Roon stand out as the supreme products of a proper application of the great principle evolved during the English Revolution.

This principle, as I have already indicated, is that under the Constitution the soldier and military administrator are co-equal powers, each acting as an independent check on the other. Both these powers must, it will be readily understood, work together in harmony for the common good, or disastrous results must ensue. Something more, however, than mere harmonious co-operation between them is wanted, if a system based on the principle referred to is to prove an unqualified success.

To begin with, it is above all things essential to the smooth working of such a system that the line of demarcation drawn between the spheres of influence of the soldier and of the administrator respectively shall be consistently maintained. I will endeavour to explain to you directly the disastrous consequences arising from any attempt on the part of either of these authorities to step outside of his own proper sphere of action, or to assume powers that do not strictly belong to him.

Secondly, the nation will be well advised to see to it that a properly regulated balance is preserved between the military and the administrative departments in matters of establishment, prestige, and authority. If, as constantly happened during the eighteenth century, Parliament goes out of its way to magnify the importance of the administrative side and simultaneously to deprive the military side of all semblance of power and even of the staff necessary for its work, surprise must not be felt if what is essentially a delicate piece of machinery is thrown completely out of gear. In such circumstances no system could be expected to work satisfactorily.

Thirdly, seeing that the work of the administrative departments is mainly of a business character, it ought to be assumed that the

heads of those departments will be selected by reason of their business capacity. And, capable men having been placed at the head of these departments, it ought further to be assumed that they will be given the powers and responsibilities usually accorded to business men in civil life. To do otherwise is to place economy and efficiency at a discount.

I will summarize very briefly the conditions as I conceive them essential to the smooth and successful working of the army system initiated by William III and his Parliament :—

- (1) The line of demarcation between the military and administrative departments should be clearly recognized.
- (2) A fair and true balance in all essentials should be maintained between these departments.
- (3) The heads and the staffs of these departments should be selected by reason of their aptitude for the work required of them.
- (4) Full responsibility should rest with the heads of the several departments, and they should possess powers equivalent to their responsibility.

Well, gentlemen, I dare say you are as glad as I am to leave theory behind and to get on to the more fascinating study of accomplished facts. We have now to examine the nature of the machinery set up at various periods during the past 200 years with a view to applying the principles of the Revolution, and this examination entails our passing in review the history of four great offices in the State. These offices are those of the Commander-in-Chief, the Secretary-at-War, the Chancellor of the Exchequer, and the Master-General of the Ordnance respectively. From 1688 to the time of the Crimean War the business of the Army was, in theory, divided between these four great officials.

To put matters as concisely as possible, the Commander-in-Chief exercised, or ought to have exercised, the duties carried out to-day in the General Staff and by the Military Secretary at headquarters, as well as the disciplinary functions now vested in the Adjutant-General, all these duties, be it noted, being non-administrative in their nature.

The Secretary-at-War, who was, as a rule, a civilian bearing a semi-military commission from the Sovereign, and who was latterly a member of the House of Commons, was the administrator of the personnel of the Army, other than the Artillery and Engineers. He had everything to do with establishments, ratings, payment, and consequently with organization. He was also concerned with the movements and quartering of the Army in peace, no light task at a period when barracks were few and the most unpopular practice of billeting had in consequence to be resorted to.

The Chancellor of the Exchequer, as the head of the Treasury, was responsible for the commissariat duties of the Army. He and his agents, the commissariat officials, "raised and held funds for the use of all branches of Government abroad, acted as contract agents for military and naval services at foreign stations, and were generally responsible for supplying the Army with food, forage, land and inland water transport." "During the Peninsular War the reserve stores of shoes, blankets, camp kettles, tents, and what are usually called Quartermaster-General's stores, were received and issued by the Commissariat." This statement of commissariat duties has behind it the weight of two great authorities—the late Lord Haliburton, who had himself been a commissariat officer in the Crimea, and Sir John Bisset, Wellington's Chief Commissary-General in the Peninsula.

It is clear, therefore, that the Chancellor of the Exchequer, in addition to his other onerous duties of State, exercised all the more important functions of transport, supply and finance, now dealt with in the Quartermaster-General's and the Finance Departments of the War Office.

The Master-General of the Ordnance was usually a military officer of high rank, having a seat in the Cabinet and in the House of Lords. Assisted by the Board of Ordnance, he was responsible for the supply of arms, armament, and military stores for the Army and the Navy, and he had charge of barracks and fortifications. The Corps of artillery and engineers were absolutely under him for all purposes, and he made rules and regulations for their government. These Corps had separate staffs and offices in the commands, remnants of this old practice being still in evidence at the present time.

Briefly then, prior to 1854, the administrative services of the Army were dealt with in three separate and independent departments of State, two of them, the Secretary-at-War's office² and the Treasury, being located in different buildings in Whitehall; the third, the Ordnance Department, having its offices in the Tower. Of these three departments, one was concerned with the supply of officers and men for the commands, for the staff, and for the cavalry and infantry; another furnished food, forage, transport, camp equipment, and cash, as well as the commissariat personnel; to the third fell the provision of gunners and sappers, armament, and war matériel.

Prior to the Acts of Union with Scotland and Ireland, these several departments found their exact analogues in those countries, the forces raised there being commanded and administered independently of the forces in England.

There was, I venture to assert, one method, and one method only, by which the activities of three independent administrative departments

² The Secretary-at-War's office was moved from Whitehall to Pall Mall in 1857.

such as I have described could be brought into harmony with a view to the production of an effective instrument for war. What was wanted was the institution and the maintenance of a military office, under a distinguished soldier, so strong in numbers and prestige that it could act as a constant check on the administrative departments, and as a source of inspiration and counsel to them in all matters connected with war and war requirements.

In point of fact it was not till 1795 that a permanent Commander-in-Chief's office was instituted. Prior to that date "A Captain-General, a Commander-in-Chief, or a General of the Force was," says Lord Haliburton, "frequently appointed for special purposes and for limited periods—on one occasion three of these existed at the same time—who exercised the Royal prerogative of command." Among these occasional heads of the Army the Duke of Marlborough, the Duke of Cumberland, and Lord Ligonier may be mentioned; and, in spite of the fact that they had no settled staff of officers or clerks, the effect which such men had in temporarily raising the efficiency of the Army cannot be exaggerated.

But the point to which I would particularly draw your attention is the fact that for more than 100 years after the Revolution the basic principle of the constitutional settlement was vitiated and set at naught. For want of a strong military department there was no chance of any semblance of balance being preserved between military interests on the one side and administrative interests on the other. The only marvel is that, in such circumstances, the Army system could have worked at all.

As a matter of fact failure in war was, throughout the eighteenth century, the normal condition of affairs. What successes were won were due to the genius of a Marlborough, a Wolfe, or a Clive, and for a brief period to the military intuition of a statesman like William Pitt, Earl of Chatham. Read Mr. Fortescue's pages and learn the appalling state of unreadiness that obtained at the beginning of every war for which the home Government was responsible from William's time down to the Crimean campaign. I have no time to quote all the instances, but read for yourselves and you will see that I do not in the least exaggerate the extraordinary condition of affairs. There is, however, one piece of evidence bearing directly on our administrative shortcomings which is of so striking a nature that I must ask you to bear with me while I read it to you at length. The quotation is taken from a work entitled "On Commissariat Field Service," written by Sir John Bisset.

He was, as I have already stated, Wellington's Chief Commissary-General in the Peninsula and in France, and as he was also a Treasury official he cannot be suspected of wishing to paint the sins of his department blacker than they were. Remember, please, that at the period of which he is writing England had already been at war with

France almost continuously for 15 years. Sir John's statement is as follows :—

“ At the period of Sir John Moore's first entry into Spain, when such a cry existed against the inefficiency of the British Commissariat, it must be recollected that arrangements had not yet been made in respect of the discipline of the department, and the appointments to it, with a view to furnish a set of officers trained in some measure to the duties to be required of them. Such training could not be the work of a day. Also, that prior to this, many gentlemen got commissions in the higher ranks of the Commissariat, who had not passed through the lower gradations, or acquired any of the practice which a regular probation would have produced. The numbers, too, were defective, and I remember perfectly that, in the absence of the Commissary-in-Chief (whose principal deputy I happened to be at the time), I was sent for by the late Mr. Perceval, then Prime Minister, because the Treasury had some doubts as to the necessity for sending out so great a number as twelve additional clerks, for whom Sir Robert Kennedy had applied, though they were immediately sanctioned, on the explanations I was enabled to give of their being requisite. Had Mr. Perceval lived to the close of the war he would have seen ten times the number borne on the return of the Peninsula Commissariat. Still, the clerks, when so sanctioned, had to be sought for and sent out with their duties to learn ; and they are not quite so easily learnt as is generally supposed, whilst for their errors or irregularities the country pays heavily.”

If such was the state of affairs at the Treasury in 1808, what must it have been 15 years earlier at the beginning of the French wars ? I ask you once again to bear in mind that this department of State was directly responsible for the proper performance of practically all the existing Quartermaster-General's enormously important duties with an army in the field. Could any more amazing piece of evidence be produced in explanation of the tragedy of Sir John Moore's retreat and death ? *Ex pede Herculem !*

It may well be asked how in such circumstances the British Army ever achieved success. Success, in fact, appears to have been unattainable until, after a long period of war and many disasters, the national spirit was at last thoroughly aroused, and until by some fortunate chance a commander of genius was found to fashion for himself an army fit for war. Such a man was found in Wellington. He bent the administrative departments at home to his will, and within the lines of Torres Vedras he gave to his Army such discipline, such efficiency, and such mobility as enabled it to carry its arms triumphantly from the coast of Portugal into the heart of France.

He did in the field what ought to have been accomplished by long years of previous preparation in the office.

While Wellington's vigour lasted his efforts sufficed to prevent military interests being completely ignored. Moreover, the office of Commander-in-Chief now existed and acted to some extent as a counterweight to the administrative departments. Matters never again sank quite to the level of the eighteenth century.

The experiences of the Crimean War at last made clear to the nation how hopeless it was to expect that purely civilian departments could ever organize an army worthy to uphold the national honour.

Probably no administration ever had an easier task set it than in 1854. For months before our Expeditionary Force landed in the Crimea, war had seemed inevitable and ample time for preparation had been afforded. Our Army was never more than 10 miles from its sea base, and for months it remained stationary. The enemy was unhelpt by railways, and brought his troops into the theatre of war by route march, as in Marlborough's day. Our soldiers did all that could reasonably be expected of them. Yet the failure of our military system was patent to all men, and the blame for that failure rested wholly with the administrative authorities.

After 1855, and especially after 1870, when the world learned for the first time how fundamentally war was to be affected by the railway and the telegraph, a revolutionary change in our whole system became inevitable. Before, however, I proceed to deal with recent changes, I wish to draw your attention very briefly to the main features of our Army system as it existed from 1688 down to the Crimean War.

With one exception, not any of the conditions which I mentioned earlier as being necessary for the success of the system conceived by William III were fulfilled. The administrative departments observed no line of demarcation between their own functions and those that properly belonged to the military chiefs. The administrator invaded the military domain with results disastrous to military discipline and military efficiency. On the military side there was no individual or office with power to protect military interests, or with the recognized duty of instructing the administrative departments in their war duties. The heads of the administrative departments were not, as a rule, selected by reason of their aptitude for the work required of them, but purely on political grounds.

Only in one respect did the system prior to 1854 conform to the specified conditions. Subject to Parliamentary control, the heads of the administrative departments were masters in their own houses. They possessed powers equivalent to their responsibility. Their shortcomings cannot fairly be ascribed to any outside interference. If their agents failed them in the field they could not excuse themselves by representing they had never had a chance in peace of instructing their subordinates in the duties they would be called on to fulfil in

war. In peace and in war the financial responsibilities and powers of the administrative departments were identical.

To complete the picture of the Army system as it existed formerly, it remains only to explain shortly what was the nature of the control exercised by Parliament over the administrative departments. This control over all departments of State alike remains to-day substantially what it was prior to 1854, and it can, therefore, be appropriately described in the present tense.

Money is appropriated by Parliament for special purposes by means of votes. These votes determine the responsibility of the administrator, who at the end of the financial year has, by means of accounts, to satisfy the House of Commons that the money voted for his purposes has been honestly spent as intended by Parliament. The Comptroller and Auditor-General, who is an officer of the House of Commons, has fullest powers of auditing departmental accounts throughout the year, and he maintains his agents in all departments for this purpose. Finally, the Public Accounts Committee of the House of Commons inquires drastically into completed expenditure and audited accounts. Observe that there is nothing in this procedure unlike or inconsistent with business methods in civil life. There the power of the auditor is great, and I know of many cases where the process of audit goes on without intermission throughout the year, with satisfactory results alike to auditors and audited.

Certainly, so far as Parliamentary control is concerned, administrative shortcomings, either in the past or at the present time, cannot justly be laid to the charge of the British Constitution.

I would have liked to describe in some detail the various processes since the Crimean war by which the existing organization of work at Army Headquarters has been arrived at; but time presses, and I cannot, therefore, do more than indicate the main tendency of Army reform since 1857.

The first obvious step was to consolidate under one chief—a Secretary of State for War—the work of the three separate departments which had existed hitherto. The second step was to bring the Commander-in-Chief's office into the same building with the administrative branches. After some 40 years the result of these changes is plain. The militarization of the civilian departments followed naturally from the amalgamation of the Horse Guards and the War Office. Simultaneously there was a converse tendency. The military officials became more and more absorbed in administrative work. Gradually the line of demarcation between the commander of troops and the administrator became blurred, and finally disappeared altogether.

As it was at Headquarters, so it was outside the War Office. The office file, the punctual rendering of returns and Army Forms, the criticisms of the Finance Department on items of expenditure, soon

assumed, for commanders of districts and their staffs, an importance such as constituted a real threat and danger to purely military interests.

Many in this room were brought up under the system to which I refer, and they will, I think, support my contention that, prior to the South African War, military art and military science were in danger of being crushed out of existence by the pressure of administrative business. Indeed, how could things be otherwise, if you once allow military science and administrative detail to become inextricably confused? In course of time one is bound to kill the other, and it is not military science which will survive.

Commanders and staff officers hold their appointments for a limited period only, and the chances are that serious war will not supervene in their time. On the other hand, the daily round of peace routine makes never-ending claims on their time and attention. They would be more than human if they did not set administrative labours, on the results of which they will certainly be judged, before military studies and pursuits, the neglect of which may never be brought home to them by the only test that tells—the test of war. Fortunate it was for Britain that in 1900 there still existed a school of officers who, trained in India where the distinction between command and administration was till then carefully preserved, had never been called on to bow the knee to the Baal of administration.

A further danger inherent in the system that obtained at home in the eighties and nineties, and for two or three years after the South African War, deserves attention. In the province of command decentralization should, on principle, be encouraged. The divisional and brigade commanders should be given as free a hand as possible in all that relates to the command and training of troops. Moreover, the troops they command are probably, owing to exigencies of accommodation, scattered over a wide area.

In the domain of administration, on the other hand, a greater or less degree of centralization is inevitable, both in peace and in war. Further, the limits of an administrative officer's activities are usually determined geographically. He controls some administrative service or services in a certain area, more or less extensive.

Mix up the two functions of command and administration, and almost certainly you will find that the commander's sphere of responsibility is fixed, not by the troops he will command in war, as it ought to be, but for reasons of administrative convenience. This subject I have touched on is a big one, and it is also somewhat abstruse, and I have not time on this occasion to deal with it adequately. An illustration will, however, serve, I hope, to show generally what I mean.

It is only a comparatively short time since the General Officer Commanding at Devonport commanded, or was supposed to command,

personally, a division and a brigade of the Regular Field Army, as well as a mass of unorganized militia and volunteer units. There were then no higher commanders or staffs for the so-called Auxiliary Forces. He was also the official commandant of Plymouth Fortress. Moreover, theoretically he was responsible for every penny spent in an area equal in extent to at least half the present Southern Command. Record offices did not exist at that time but, if they had, doubtless he would have been held, in theory, to be responsible for every transaction in three or four of them.

Such a state of affairs could only be obviated by a return to the sound principle laid down at the Revolution. The line of demarcation between purely military and purely administrative interests had to be drawn afresh, and duties redistributed accordingly. To effect this was one of the main purposes of the Esher Committee.

Before concluding, I am anxious to submit the Army system as we know it to-day to the same test that earlier in this lecture I applied to the pre-Crimean system. To what extent does the present system fulfil our ideal conditions?

On one side of the line dividing military from administrative duties we find, in the General Staff, a non-administrative but increasingly strong body, ever striving to develop military science in all its branches, with readiness for war as the main purpose of its existence, and with means at its disposal for making its influence felt throughout the whole structure of the administrative machine.

On the other side of the line stand three great administrative departments, controlled respectively by the Adjutant-General, the Quartermaster-General, and the Master-General of the Ordnance, with men at their head selected by reason of their administrative aptitude, and with establishments of trained personnel, both at headquarters and in the commands, adequate for all probable contingencies.

In one respect, however, the system of 1912 will be found to be weak just where the older system of pre-Crimean days was strong. Formerly each head of an administrative department and his subordinates knew exactly what their powers were financially. They were directly responsible to Parliament for their votes or parts of votes. Their accounts, after being acted on departmentally, were transmitted to the Audit Office at Somerset House. To-day this is not the case. The head of each administrative department is not now master in his own house, as was formerly the Secretary-at-War, the Master-General, or the Chancellor of the Exchequer. He is not responsible to Parliament directly for the administration of his votes as was his prototype. Mr. Charles Harris, the able head of the Finance Branch at the War Office, in the first number of *THE ARMY REVIEW*, gave the true definition of administrative responsibility. "These two factors," he writes, "the free hand and the liability to be called

upon to answer for the results obtained, together constitute real responsibility." From the business point of view the present administrative chiefs and their subordinates have no real responsibility in peace. Whether on the outbreak of hostilities they are suddenly to be called on to shoulder financial responsibility of a far-reaching character is not clear. Nowhere, as far as I know, is it definitely laid down what the financial responsibility of the administrative agents is to be in war, or through what channel their responsibility is to be exercised.

This lack of real responsibility in peace has one serious and far-reaching result. It can best be described in Mr. Harris's words:—
". . . Our accounts, which follow the arrangement of the Estimates, do not show the cost of any service, department, or branch of the Army, or any other result of which the mind can lay hold as throwing light upon the economic merits of Army administration. Of course, it would be within the reach of the science of accounting to keep books showing what each unit of cavalry, infantry, and the rest cost in the year, what was the cost of a horse-transport or a mechanical-transport company of Army Service Corps, and how many tons each carried in the year; what was the cost of an Ordnance dépôt, and how much stuff passed through it in the year; and other results of that kind. These would approximate to commercial accounts. But, surprising as the statement may be, we in the Army hardly know what *accounts* are." But, gentlemen, control of his accounts is absolutely essential to an administrator's professional existence. By their means he must satisfy his own conscience, his employer, and his auditor of the probity and the efficiency of his methods. Deny him the control of his accounts and his accountants and you take away from him all real sense of responsibility. In the Army matters are further complicated by the existence at Headquarters of a branch which possesses powers both of audit and accounting. A system which allows the line between administration and audit, between the administrator and the auditor, to become blurred and practically indistinguishable is, from the business point of view, an impossible system. Is such a system inevitable under the British Constitution? I cannot think so. At any rate, it is not the system that obtained in our administrative departments prior to 1854, and it is not the system prevalent at the present time in the German Army. The practice of confusing audit with administration appears to be of modern date, and in no department of State is the practice so prevalent as at the War Office. Historically and constitutionally, at any rate, there would appear to be no justification for placing the military administrator at this great disadvantage.

Perhaps you may think that these matters of high policy do not affect us here. But the question of accountability has, or may have, a direct personal interest to any of us in this audience. You may

remember the difficulties which arose when, after the South African War, it was a question of bringing home to individuals responsibility for the slackness in business methods which was revealed by Mr. Justice Farwell's Commission. As matters stood, blame might well have attached to almost any one in the whole hierarchy from the Commander-in-Chief downwards. Until this vital question of financial responsibility, both in peace and in war, is settled once and for all, a sword of Damocles hangs over the head of every one of us.

I have now completed this necessarily brief examination of the theory and the practice of our military system. I trust that I have been able to show that the fundamental principle on which that system rests is, in itself, a sound one. I have also tried to indicate the causes which hitherto have prevented that principle being applied in its entirety and without reservation. We have seen, too, that there is nothing in the British Constitution itself to prevent the principle being so applied in practice.

Before I finish, let me summarize the conclusions which may, I think, be fairly drawn as the result of an unbiassed examination of historical facts.

Under a Constitution like our own, where financial authority is derived from the House of Commons, the Army system conceived by William III is, I submit, the only possible system.

As we have seen, the efficiency of that system depends on the constant maintenance of a just equilibrium between military and administrative interests.

A clear definition of military functions on the one hand and of administrative duties on the other is, therefore, requisite. Steps, however, must be taken to prevent the gap between these two sets of functions becoming too wide. Co-operation and harmony are essential.

Definition of duties once decided on, it is essential that the military and administrative personnel should specialize in their respective duties. Constant study of the theory and practice of war is as essential for the higher commander as is the long continued development of business capacity for the administrator. Both soldiers and administrators must be given ample scope for practising in peace the work they will be called on to carry out in war. It is as futile to expect powers of command to be developed in a commander who does not command as to look for business skill in an administrator who does not administer actually as well as nominally.

There is an additional reason why specialization is essential for the administrative staff. Unless and until the House of Commons is conscious that in its military administrators it possesses capable men of business, it will not be persuaded to delegate to them such financial powers as alone will put them in a position to combine efficiency with economy.

Above all things our Army system in peace should be determined wholly by war conditions. If in any respect our methods have to be altered or modified when war supervenes, to that extent our system is unreal and impractical. The ideal to be aimed at must be the production at a few hours' notice of an instrument fit for war in every respect.

Of late years we have travelled far along the road that leads to reality. Only in the matter of financial responsibility, a matter of enormous importance, is further development still needed. When the day comes, as it must come, that ordinary business methods are applied to our Army administration, when knowledge, power, and responsibility are united in the person of the military administrator, we shall then be in a fair way towards attaining an efficiency and a state of readiness for war hitherto undreamed of in our national philosophy.

III.

ARMY FINANCE AND MANAGEMENT.

By MAJOR H. A. YOUNG, R.A., Indian Ordnance Department.

IN venturing to offer some remarks on the very interesting paper on Army Finance, by Mr. Harris, which appeared in the July, 1911, number of *THE ARMY REVIEW*, I, as an amateur, am at a disadvantage, and, moreover, I am liable also to two dangers—criticism of superiors and ignorance.

Few military officers can ever be experts on such a subject as finance, but an increasing number are studying business methods, while a large number are convinced that the business of maintaining the Army could be run far more economically than at present.

In the senior ranks of the Army there is a curious horror of anything approaching criticism which is vaguely thought to be “subversive of discipline.” Progress, however, is impossible if existing systems and methods are held to be sacred until those at the top see fit to alter them. Surely it is the steady undercurrent of grumble and discontent at wasted effort, unrewarded work, and unnecessary hardships, that are harmful to military efficiency, and not open criticism? Initiative, that most valuable of military virtues, cannot be cultivated if all critical faculties are sternly repressed.

My service having been mainly in India, my knowledge of home conditions cannot be exact, and it is, therefore, most probable that some of my remarks will be more applicable to Indian methods than to those which obtain under the system described by Mr. Harris.

This article on Army Finance affords a most instructive insight into the attitude and views of those officials to whom the State has entrusted the duty of administering and managing the Army, by which I mean the business of maintaining the Army as distinct from the work of training it. We are frankly told that business methods are, in practice, impossible; that we have an unbusinesslike system of control of expenditure; that our accounts do not show the cost of any branch, nor any result which the mind can lay hold of, as throwing light upon the economic merits of army administration; that we, in the Army, hardly know what accounts are; that in place of a system under which every man concerned with expenditure

would have a definite financial responsibility, we have one which is more properly described as financial irresponsibility.

Such a statement from such a source cannot but give the greatest possible disappointment to the small but rapidly increasing number of officers who are hoping and striving for more scientific management of army business. If the paper is studied carefully, the only reasons to be found for the conclusion that business methods are impossible, are : first, that the Constitution is against it, as the method of providing funds for military purposes and of accounting for the expenditure of those funds is that authorized and required by Parliament ; and second, that useful accounts would involve considerable clerical labour, and that the officers who would have to keep them, and the civilians who would have to audit them, regard all accounts as an evil to be kept to the unavoidable minimum, so that accounts useful for administrative purposes are not practical politics !

Surely these reasons are most insufficient and unconvincing ; we know that there is nothing really sacred about even the Constitution itself, and it is certainly within the power of the State to alter methods of finance and administration whose chief claim to sanctity appears to be that they date from 1688. Moreover, it is indeed a strange theory to advance that, because some officers and civilians do not like accounts, it is impracticable to alter the system so that accounts may be of real use to those to whom the State looks for economical administration. Undoubtedly, accounts have a very bad name in the Army to-day, because few who come in contact with them have discovered their use, and no one has ever been rewarded for economy nor disgraced for waste. A system which causes trouble when anything is lost, or when an allowance is exceeded, but takes no notice of success in economy in other allowances or in saving in equipment generally, is not likely to be popular with any keen officer. In India, we have to assemble a Board of three officers "to inquire into the circumstances under which a pair of boots have not lasted the prescribed period" ; but we take no notice of a battery which breaks six or seven times as much of its equipment in a year as any other similar battery. The system can best be described as "straining at a gnat while swallowing a camel."

In the commercial world there has been a great stirring of late, and one supreme fact brought to light—for true efficiency, it is not more work or expenditure which is necessary, but less waste. Waste is the enemy, not only of economy, but of efficiency and progress as well. We, in the Army, are too apt to confine our attention to the doings of other armies and to neglect the many useful lessons to be learnt from industrial and commercial experience. Many of the problems which confront the army administrator are identical with those which have to be solved in large railways, or in the great groups of engineering establishments.

An efficiency expert¹ of the highest eminence in America has laid down 12 principles of efficiency which are just as applicable to Army business as they are to industrial work for which they were evolved. These 12 principles are :—

(1) Ideals ; (2) Common sense and judgment ; (3) Competent counsel ; (4) Discipline ; (5) The fair deal ; (6) Records—reliable, immediate, and accurate ; (7) Planning and despatching ; (8) Standards and schedules ; (9) Standardized conditions ; (10) Standardized operations ; (11) Written standard-practice instructions ; (12) Efficiency reward.

(1) Ideals are as essential to progress in an army as they are in any great industrial undertaking. Without high ideals an army stagnates, as did the Prussian Army in the latter part of the eighteenth century. With our inventive and manufacturing skill, our wealth, and the length of service in our Army, our ideal should be of the highest ; nothing short of perfection in the use of weapons, in general training, in physical and moral stamina, in organization, and in business administration, should be the aim of all. Fire effect does not depend on rifle-meeting prize winners, but on the skill of every man who carries a rifle. The ideal for a regiment should not be to sweep the board at a rifle meeting, but to make its cooks and batmen marksmen.

(2) Common sense and judgment, how simple it sounds, yet how lacking in every-day life ! One would hardly use a 100-ton steam hammer to crack one's walnuts, why then employ three officers to sit on a pair of worn-out boots ? Endurance in marching is essential to the efficiency of fighting units ; but worn-out men are useless in a firing line. Checks are useful in all transactions in money and stores ; but it is obvious that, in India at any rate, far more money is spent on checks than could ever be saved by the prevention of possible error or fraud.

(3) Competent counsel can only come from the best brains in the Army. Specialists, gathering in all possible information, should study the problems that confront the line and provide expert teachers in every branch of military work. To copy blindly the methods or ideals of other armies is to lag behind and to ignore the difference, often vital, in conditions. Constant study and practice alone can make the expert ; having got an expert, keep him at his own particular line. Continuity of thought and policy are essential to efficiency, and so is continuity of work ; frequent changes in appointments to suit individual fancies are fatal to the efficiency of the individual and of the Army as well.

(4) Discipline is an unfortunate word, and has an unpleasant and intimidating sound to the bulk of the civil population, for it is redolent of the manners and ideas of the past, and it has unfortunately covered a vast amount of cruelty and injustice. Discipline, iron

¹ Mr. Harrington Emerson.

and merciless, turned the motley army of the Great Frederick into a pattern for all Europe. Loyalty to trusted superiors and a manly self-reliance was the moving spirit of Oyama's and Nogi's men. Where a prehistoric spirit of discipline rules, self-reliance, initiative, and adaptability cannot exist. In the perfect fighting man these qualities, combined with loyalty, must be highly developed. We really need a new word to use in place of discipline; some word which will include all that is good in the idea of order, training, and subordination to the general welfare, but which will not lend itself to use as a fetish.

(5) The fair deal is bound up in true discipline. Absolute fairness between the State and its servants, between officers and those under them, is essential to that loyalty which is the basis of true discipline. Unfortunately, the fair deal is by no means universal in the Army; instances can be supplied by most officers.

(6) Records, reliable, immediate, and accurate, are essential to progress. They are the only means by which the road to economy can be pointed out, and a system of finance and accounts which does not give, to everyone who is responsible for expenditure, accurate and prompt records of the charges over which he can exercise control, is, in itself, one of the great causes of waste. Records are also of vital importance in the struggle for efficiency; every commander, whether of troops, or of a unit, should know the progress made by other troops and by other units.

(7) Planning and despatching prepare an army for war. But it is not enough to prepare complete mobilization tables for use in war; the work of each unit, and of each individual in peace, must be planned beforehand. It is not sufficient to supply a new equipment when the existing one becomes worn out or obsolete; planning and experimenting must go on continuously. Planning and despatching mean forethought, and forethought requires constant study not only of the problems of the moment but of the problems that ever-changing conditions will bring forth to-morrow.

(8) Standards and schedules are evolved from the study and experiments of experts. Each man and each animal should be worked to a schedule and towards a standard. The expert fixes the standard, and the line should constantly strive to reach it and to pass it.

(9) Standardized conditions improve the efficiency of the individual. The better the conditions under which a man works, the better the work will be; but men, as well as animals, should always be worked within their permanent strength, that is, the work they are called upon to do should be the maximum that will not impair their future usefulness. It is not enough to tell a man that polluted water is fatal, he must be so trained that he will not touch it, but will save his supply of good water to the last possible moment. The Japanese could do this, why not the English? It is not sufficient to make a man

an expert rifleman or gunner, his body and his mind must be raised to a high level of efficiency. A weak-bodied, unintelligent man may make a possible at a target, but he will never reach a far-off firing line. Baden-Powell puts it clearly: "The drilled machine of Frederick the Great is out of date; the fighting unit nowadays must be composed of intelligent and handy individuals."

(10) Standardized operations help a man to do good work with a minimum of effort. Every operation in modern life is complex to a high degree and is made up of numerous details; no man can evolve for himself the best way of doing each and every detail. To teach him the best known way of doing his work is to save him effort which can be more usefully employed in raising his intelligence or in other work. Every operation in the service of a gun can be standardized, and every member of its crew made perfect by training. It is the duty of the expert to find the best methods, and to teach them to the line.

(11) Written standard-practice instructions record for us each step taken towards efficiency. Our training manuals are examples of written standard-practice instructions, but they are frequently unsuited to the use of the lower ranks. Each individual requires instructions for all work he has to do. The best method of performing each operation connected with the carriage, loading, aiming, and firing of a rifle should be known to the infantryman through written standard-practice instructions, and the same should be provided for each detail of his military work, such as camping, marching, health, care, &c. It is, above all, essential that such instructions should be open to suggestions from anyone who has to use them.

(12) Efficiency reward. The American expert says: "When this great principle is directly woven into an efficiency struggle it pushes irresistibly upwards. If it is disregarded, even the best weary of well-doing." It is the great drawback to service in the Army that promotion is mainly a question of length of service or of opportunity in war. Mediocrity and indifference pass up at the same pace as genius and keenness. Service in war or on the staff may take the latter out of the rut; but, as a rule, the every-day rewards of military life come to good, bad, and indifferent alike. Accelerated promotion for the staff is an excellent thing no doubt, but it is the line, fighting and administrative, that needs incentive, and a good man neglected is an example to others not to worry or show zeal. Army officers and men are not wasters by any means; but real effort only comes from imperfect human beings under some tangible incentive. Patriotism and duty are good words, but military officers are civilians under their uniform, and, like any other civilian, work for their living. Reward economy and it will at once take its proper place in the Army as second only to efficiency. The dashing officer who gets rid of stained but otherwise serviceable harness, who uses

acid polishes that rot accoutrements, who damages his equipment by unnecessary rushing at nullahs, or neglects in any way the stores in his charge, will soon change when he knows that the cost of keeping his unit going is being recorded and will be compared with the records of similar units.

These principles seem to me to point the way to a policy that would give us a higher efficiency with far less cost than can ever be possible under the "let sleeping dogs lie" policy indicated by Mr. Harris. The curious part of the whole matter is, that we in the Army, whether officer or official, never seem to profit in administration problems by the lessons of the past. Great strides are made every year in fighting efficiency; but administrative economy ceases to interest, once the inevitable Royal Commission has issued its report. Wellington's despatches, the history of the Crimean War, and the history of our last great war, all tell the same story—the same complaints, the same mistakes, and, in the main, the same system! Another curious thing is, that whenever it becomes imperative to reduce the Army budget, officer and official alike at once begin to talk, not of economy, but of reductions in strength. No one will ever admit, for with accounts as they are no one can ever realize, that economy can be obtained without any reduction of fighting efficiency.

It is impossible within reasonable limits of space to indicate more clearly the direction reform should take, and to enter into details would involve some criticism which I am anxious to avoid. The lessons which we can learn from modern methods of management are plain: High efficiency comes from specialist staff experts teaching the line and raising standards in every branch of its work; true economy comes from devolution of financial responsibility and the detection and prevention of waste of effort and of money. Economy, no less than efficiency, must reap adequate reward. Economy must commence in the battery, in the battalion, and in the store dépôt, and to obtain it the actual money-cost of everything done must be known to and recorded against the officer in charge. Till a business-like system of finance and accounting is established and worked with economy as its main object, check and audit being secondary only, it is perfectly useless to use the word economy in connection with Army business.

NOTE.—"Army Finance," originally a lecture to students at the Staff College, aimed at historical explanation of what is, rather than a critical exposition of what should be. The practical difficulties of designing "business accounts" for the Army are very considerable, as the author will find if he tries to translate his twelve principles into concrete terms; but when the Heads of the Army have adopted the policy that an officer's promotion should depend on his balance sheets, the Finance Department will not shrink from the task. But the new spirit must arise from within the Army itself; and till it arises, to keep the accounts to no purpose would be to throw good money after bad.—A. F. S.

IV.

THE STAFF COLLEGE, CAMBERLEY.

By MAJOR-GENERAL W. R. ROBERTSON, C.V.O., C.B., D.S.O.,
General Staff, Commandant Staff College, Camberley.

THE history¹ of the Staff College, Camberley, dates back to May, 1799, when a military institution for the purpose of educating commissioned officers for Staff employment was opened at High Wycombe. General Jarry, a retired French officer, was appointed Superintendent; the course, for which a fee of 30 guineas was exacted, was for two years; and the number of students was fixed at thirty-four. Two years later this institution was recognized by Royal Warrant, and henceforth became known as the "First or Senior Department of the Royal Military College." It was placed under a Governor and a Supreme Board of Commissioners, which included the Commander-in-Chief and the Secretary of War. The number of students was no longer limited, and the fee of 30 guineas was made an annual one. The Junior Department, or educational establishment for cadets, was formed in 1802; but with it we are not here concerned. In 1813 the Senior Department was moved to Farnham, while eight years later it was transferred to Sandhurst. New regulations then came into force, introducing a qualifying examination and limiting the total number of students to fifteen and the duration of the course to one year. This reduction in number and time was made on economical grounds, the Senior Department being sacrificed in the interests of the Junior Department, and sharing its staff of instructors.

The subjects of instruction at this period were mathematics, military drawing, fortification, French, German, and General Jarry's Instructions (apparently his "Instructions concerning the duties of light infantry in the field"). In the twenties of last century "Field Operations" took the place of General Jarry's Instructions,

¹ For some of the historical details in this article I am indebted to the "Annals of Sandhurst," by Lieut.-Colonel Mockler-Ferryman, published in 1900.

and astronomy and riding were added. The hours allotted per week to the several subjects in the fifties were :—

Mathematics ..	12 hours.	French ..	.. 3 hours.
Fortification ..	6 hours.	German..	.. 3 hours.
Military drawing	6 hours.	Riding ..	.. 3 hours.

No mention is made of field operations or tactics, and the only reference to military history that I have been able to discover is an order of September, 1857, cancelling a lecture on that subject. Stress is, however, frequently laid on the importance of drawing and fortifications, as for instance in 1840 when the Governor “assures” all officers “that there is no part of the course of studies . . . more useful in a professional point of view than the science of fortification.” The Register of the Senior Department shows the names of 786 officers as having entered it during the 58 years of its existence—that is, an annual average of between 13 and 14. As a proof that war always creates the demand for trained Staff officers, it is worth noting here that during Napoleon’s Consulate and Empire the average annual admissions amounted to 22 officers, while in the decades ending 1830 and 1840 the average fell to about 10, in that ending 1850 to a little over 8, and in the next 7 years to about 6. Then, as the outcome of the Crimean and Mutiny experiences, was instituted the Staff College with its yearly quota of 15 students, and about this time the fee of 30 guineas per annum ceased to be exacted.

From the 1st January, 1858, the name of “Staff College” was substituted for that of the “Senior Department of the Royal Military College ;” but the students retained their halls of study in the latter College until August, 1862, when the present Staff College buildings were completed, at a cost of £62,000.

A commission as Commandant was issued in February, 1858, to Lieutenant-Colonel P. L. MacDougall, who had till then been Superintendent of Studies in the Senior Department. He possessed the Military College Certificate (m.c.c.), signifying that he was a graduate of this department with the highest honours, and “having” further extended his attainments into the highest branch of “mathematical science, the Board marked their sense of his superior Merits and Talents by giving him the highest class of certificate. “His very superior acquirements as a Military Draughtsman were “also specially noticed on his certificate.” The instructional staff consisted of the eight professors of mathematics, military history, fortification and artillery, military topography, military administration, French, German, and Hindustani, and in addition a mathematical master. The subjects of instruction in the first few years underwent no material change, as can be seen from the following order issued by the Commandant in 1861 :—

“ Objects of Staff College.—General officers commanding in the field require among the officers of their staff :—

- 1st. Rapid sketchers of ground.
- 2nd. Rapid bridge-builders.
- 3rd. Rapid road makers.
- 4th. Rapid constructors of field-works.
- 5th. Fluent linguists.”

He adds that the Staff of the College “ should not feel satisfied “ with themselves unless they can turn out yearly ten to twelve officers “ thoroughly versed in the above practical subjects, more especially “ in the first.”

In November, 1870, the Staff College was separated from the Royal Military College, and the Governor of the latter disappeared from the Staff College returns in the following month. Subsequent changes in the instructional staff indicate the gradual alteration of the curriculum to essentially military subjects from those of a more general nature. Thus between 1882 and 1886 geology, mathematics, and Hindustani were removed from the course ; in 1888 the professorship of applied sciences was reduced to a lectureship, which was itself abolished in 1899. In 1895 Russian, which had been added in 1882, disappeared ; and a similar fate attended German and French in 1903 and 1904. Whether the abolition of instruction in these useful languages was a wise step is a matter upon which opinions are not unanimous. Later the title of D.A.A.G. was substituted for that of “ Professor,” inherited from the old Senior Department, and later still the present designation of “ Directing Staff ” was introduced, all the appointments being General Staff except in the case of the two officers belonging to the Quartermaster-General’s Staff. The increase in the strength of the Directing Staff during recent years has been the necessary corollary of a gradually increasing number of students. From 1871 to 1883 there were only about 40 ; from 1886 to 1905 there were about 60 ; in 1905 the number was raised to nearly 80, and it now amounts to 100. Officers of the Colonial forces first joined the College in 1903, while two years later the system of attaching Naval officers was first introduced. As a result of the latter system the two Services have learnt much that is valuable about each other, and have developed that harmonious co-operation and mutual confidence without which the successful conduct of joint operations becomes very difficult, if not wholly impossible.

By way of concluding the historical part of this article, it may be mentioned that at a general mess meeting held in 1859 it was decided to inaugurate an annual Staff College dinner, to which “ all officers who “ pass the final in 1859 are to be eligible as subscribers.” A proposal “ that the Commandant and Adjutant should be invited (*ex-officio*) “ to the dinner ” was unanimously rejected ! However, under pressure

of the "small number of acceptances of recent years," a general mess meeting held in September, 1863, extended the membership to the Commandant and the late Senior Department. The first annual dinner took place on the 15th December, 1860, at the Thatched House.

The "Owl" as a crest, and "*Tam marte quam Minerva*" as a motto, were first adopted in 1868, this device being due to the joint efforts of Captain (afterwards Major-General) J. N. Crealock and Brevet-Major (now Lieut.-Colonel) A. S. Jones, V.C., Adjutant of the College at the time.

One of the most satisfactory features of the Staff College of the present day is its comprehensiveness as an Imperial institution, including as it does representatives of practically every branch of the British and Indian Armies and of the military forces of the Oversea Dominions. There are but few parts of the Empire that have not been visited at one time or another by some member of the Directing Staff or by one of the students, and the interchange of the varied experience thus acquired is a valuable part of the course. The regulations which govern the course are to be found in official publications, and need not be repeated here; but as regards organization, it may be mentioned that the students are still formed, as for many years past, in two divisions of about equal strength—Juniors (1st year) and Seniors (2nd year), each being under a General Staff officer, 1st Grade. The remaining Directing Staff officers are normally divided between the two divisions, thus making a total of seven with each. The Staff officers work in close connection with each other at all times, so as to ensure that instruction in the two divisions is conducted on uniform lines, and by mixing them up at Staff tours and other similar duties "water-tight compartments" are, it is hoped, avoided. In addition to the permanent staff establishment, a medical officer is attached for the purpose of giving instruction regarding medical units and their duties in the field, instruction in other administrative duties being given mainly, though not entirely, by the two officers of the Quartermaster-General's branch.

As the object for which the College exists is to train officers not only for Staff work, but also for the more important duties of command in the future, the title "Staff College" is somewhat of a misnomer. Several other designations have been suggested, but so far none has met with approval. "War School" is one of them, and perhaps this has the most to recommend it, for although training for Staff work in peace is by no means omitted, instruction is, and ought to be, principally directed towards the problems of war. Speaking very generally, it may be said that the first year of the course is devoted to imparting the requisite store of knowledge; while in the second year chief attention is paid to developing the power of applying this knowledge to those situations with which British Staff officers and Commanders may be confronted in war.

A series of lectures dealing with the organization, equipment, training, and employment in war of each Arm, and the manner in which it can best assist the others, forms a prominent feature of the first year's work. A visit is paid to Chatham, where is carried out a programme prepared by the Commandant of the School of Military Engineering, in consultation with the Commandant of the Staff College. This includes the inspection of all the latest types of bridges, field and semi-permanent fortifications, and siege works; the actual work done by some of the less well-known Royal Engineer units, which would accompany our Expeditionary Force in the field, is seen; and tactical problems involving the employment of Engineer units in the field are presented to the students on the ground. At the end of their first term, students are attached, either at Aldershot or on Salisbury Plain, to Arms other than their own, and they also attend an artillery practice camp. During the second term some of the Southern coast defences are visited, at a time when artillery practice is to be carried out both by day and by night. At the end of the first year comprehensive written examinations are held, the papers being set by outside examiners. There may be something to be said in favour of these examinations; there certainly is much to be said against them. They constitute an unpopular part of the first year's work, and many good judges consider them to be unnecessary. Be this as it may, there is no doubt that symptoms of "examination fever" are still to be seen, and it is with a sigh of relief that the student enters on his second year with no more examinations ahead of him.

In the first Staff tour held during the second year the posts of all commanders are filled by members of the Directing Staff, the Staff appointments being filled by the students. The work done by the latter during the tour is therefore exclusively confined to Staff duties. In order that natural situations may arise calling for action on the part of the Staff, a war game, conducted by the Commandant, is previously played by the two General Staff officers, 1st Grade, and the situations which arise therefrom are duly recorded. During the tour these two officers act as Commanders-in-Chief, and the manner in which the operations will develop remains a secret except to them and to one or two others of the Staff who may require to know it. No narrative is issued; information is gained from the reports of subordinates, and from small and numerous items of news which come in at all hours of the day or night from such sources as observers in aeroplanes, secret agents, prisoners, inhabitants, and newspapers. The preparation of these items of intelligence, not by any means all reliable, requires much time and care, for it should be possible by thorough sifting and skilful piecing together to obtain the same amount of information as might reasonably be expected in war. Although the Directing Staff act as commanders, and may know what the next

move is to be, they expect the students to be able to give them at any time a short verbal appreciation of the situation, and any other information or assistance they may require from them as their Staff officers. The students are thus made to realize the necessity of constantly looking well ahead, thinking out beforehand what may have to be done, and being prepared to meet any contingency and answer any question that is likely to arise.

The study of the Franco-German War, including that part of it which has now become known as the "People's War," is completed by the end of the first term of the second year; and in the interval before the next term visits are paid, with the permission of the German Government, to certain battlefields of that campaign, such as Wörth, Spicheren, Vionville, and Gravelotte. Some years ago visits were also made to the battlefields about Orleans and Le Mans, and this year the permission of the French Government was obtained for the visit to be resumed. In some respects these battlefields have a special value of their own, as the reader can see for himself if he will peruse what is said on pages 233 and 234 of Vol. II, No. 1 of this REVIEW, in regard to "The War of 1870-1871. National Defence in the Provinces." I may mention, too, that the country in which some of these battles were fought closely resembles that found in England.

During the summer term two or three Staff tours are held, one of which takes place in North Wales at the termination of a course of lectures regarding Indian frontier warfare. Students who have once taken part in this tour are not likely to forget their long mountain climbs on foot; how they picqueted the roads which narrowed themselves into mule tracks, along which they could almost see the long string of pack animals, the cause of much previous calculation and anxiety; how they protected their camps at night; the tactics they employed to capture the passes crowned with sangars; and finally, how the enemy gave an infinity of trouble during the withdrawal of the expedition down the *nalas en route* to India—*i.e.*, to the railway stations at Carnarvon, Llanberis, and Bangor.

Another part of the second year's work is the joint exercise carried out by the officers of the Royal Naval War College, who come to Camberley for four days and there work in conjunction with the Senior division. A similar exercise of two or three days' duration takes place later, on ground away from Camberley. With the assistance of the Aldershot Command and the School of Signalling, two useful days are spent by the same division with signal units, communication being established and maintained much as it would be in war, headquarters of an army, divisions, and brigades being represented by students acting as commanders and Staff officers.

The second period of attachment of the students to Arms other than their own takes place in August and September of the second year, and generally includes the autumn manoeuvres. The present

system of attachment in both first and second year is not satisfactory, and the feasibility of making a change is under consideration. Practically all the Directing Staff are also employed on the autumn manœuvres, or attend them or some foreign ones as spectators, and in this way they try to keep in touch with the troops. It may also be mentioned that copies of all memoranda and other instructions issued regarding the training of troops either by the War Office or the commands are sent to the College, and all officers there are expected to make themselves acquainted with them. In the last term takes place the final or inspection Staff tour. It is attended by the Chief of the Imperial General Staff, and furnishes a thorough test of the capabilities of the students and of the quality of the instruction which they have received.

At all Staff tours the students of a division are formed into two or more parties, 50 being far too great a number to handle with reasonably good results. No particular attention is paid to whether Red defeats Blue or Blue defeats Red, the chief object of the tours being to give the greatest amount of the best instruction to the largest number of students, and to take full advantage of working over new ground. To ensure this it is necessary to spend the greater part of the time on the ground, considering and discussing how it can best be used, and this means that the amount of work now done indoors and on paper out-of-doors is much less than was the case in the early days of Staff tours.

The course of military history, which starts with the Napoleonic period and ends with the most recent campaigns, runs through the greater part of the two years. Lectures are restricted, as far as possible, to those details which illustrate the particular lesson it is desired to inculcate, and the more the truth of this lesson can be proved with reference not to one battle or to one campaign, but to several, the better. Further, if it can be equally well proved from the experience of modern campaigns, that experience is utilized in preference to quoting from a campaign of, say, a century or more ago. One reason for this custom is that although in many respects the broad principles of the military art may be much the same now as 100 years ago, the method of their application frequently differs.

The power of the students to deduce useful lessons from their studies is tested by means of strategical and tactical "problems," and by what are called "memoirs," the value of which are judged—*vide* the instructions issued with them—by their "conciseness, absence of "irrelevant matter, judgment and acuteness shown in comments and "deductions, grasp of essential details, capacity for sifting evidence, "the way in which the subject is arranged, and lastly the style. The "most satisfactory style is that which renders it impossible to mis-"understand the writer's meaning."

A great part of the instruction in both years takes the form of

solving concrete problems dealing with tactical situations and other subjects which lend themselves to this method of treatment. They are worked out beforehand by those officers of the Directing Staff detailed to conduct them, in order that each may be prepared with a useful day's work for his party of seven or eight students, and that the necessary uniformity may be maintained. Except in winter these exercises are usually conducted out-doors, and maps are not then allowed to be used more than is really required, the aim being to keep the officers' attention fixed on the ground, and so teach them how it can best be used. The exercises afford good practice in coming to a decision quickly, and in rapidly writing or dictating the orders or messages required to give effect to these decisions, and the students are expected on all occasions, as far as is reasonable and possible, to take the same action in every respect as they would take in war. For this it is essential that the conditions actually existing at the time and on the ground should be those with which they are asked to deal, and therefore they are never called upon, if it can be avoided, to imagine that topographical or other conditions are different from what they know and can see them to be. Moreover, when once a scheme has been issued, it is not departed from except for good reasons, while the abridgment of dates and such other devices are seldom resorted to. At any period of a Staff tour, war game, or other exercise involving the movement of troops, students must be able to explain clearly and quickly how the troops can be supplied with ammunition and food, how losses in men, animals, and equipment can be made good, and so forth. One advantage of this is that they are made to realize that unless administrative arrangements receive adequate thought in peace time they may claim too much attention in war, and even dictate the strategy to be adopted. Another good result has been the almost entire disappearance of those extraordinary feats of endurance on the part of the imaginary troops which at one time were not infrequently seen.

Criticism on the part of the Directing Staff is expected at all times to be constructive, and in the case of a strategical or tactical problem the solution which the Staff consider best, and the reason for thinking so, are explained; but it is not necessarily put forward as the only good solution. Destructive criticism of itself is not always convincing to those under instruction, and still more rarely is it beneficial to them.

In order to give practice in working together, as members of a staff should do, tasks are sometimes allotted to parties or syndicates. Each student is at least once the head of a syndicate, and thus has the experience of distributing work so as to get the best result from his party in the time available. He has also to decide on the form in which the work should be finally presented to the officer by whom it is required.

Every student in his second year has to give a short lecture to his fellows. The subject selected is submitted for approval of the Commandant, and must, of course, be one that is useful from a military point of view as well as non-political. Students who have had special opportunities of acquiring knowledge of some part of the Empire or interesting personal experiences are encouraged to speak of them. Much thought is expended and care taken in the preparation of these lectures. As the students are not allowed to read them, they learn the importance of dividing them carefully and methodically into main headings, and of maintaining a continuous train of thought while dealing with each of these headings. To some, this lecturing is rather an ordeal ; but most officers usually warm up to their subject, and then find their voices and use their own natural language. The audience is distinctly sympathetic, each member of it knowing that his turn is coming, or remembering what he felt like when in the lecturer's position.

So far only the work at the College has been described, and now a word may be said about the various forms of recreation available. Of these the drag hunt is at once the most important and the most popular. It supplies exactly the kind of exercise and distraction required during the winter months when the greater part of the day's work is done indoors. On two afternoons in the week one may leave the College after lunch and return by tea-time, having had a good run over a fairly difficult country with an extraordinary variety of fences. In addition to being a fine and healthy form of recreation, the drag provides good training of the eye for country, braces up the nerves, and improves the horsemanship of all who take advantage of it, and all are expected to do this. There is an excellent cricket ground, which is used for that game in summer and hockey in winter. It is hoped that this ground will soon be enlarged, as it is much too small for the large number of students who now have to make use of it. There are a few tennis courts and a squash racquet court, and adjoining them are nine-hole golf links. While, therefore, officers who come to the College must be fully prepared to do hard and serious work, and plenty of it, they may nevertheless count upon spending two pleasant years provided they take their work in the right way and do not make "heavy weather" over it.

There is perhaps still in the Army a misconception in regard to the expenses involved, but most p.s.c. officers will agree, I think, that it is as cheap to live at the College as with a regiment, if not cheaper. The cost of messing is 3s. 4d. a day, and beyond the usual mess subscriptions and about 12s. a month for the drag hunt and games there are practically no others. Married officers can probably live as cheaply at Camberley as at most home stations. The excellent "ten pounders" supplied by the Army Remount Department keep their riders well in the first flight with the drag, and there is no need

to spend money on horseflesh. Every care is taken to ensure that an officer who is not well off financially shall, as regards his work, be at no disadvantage as compared with those of his fellows who are more fortunately placed. For instance, motor cars and motor bicycles are not allowed to be used for work. The only officers who may feel somewhat out of their depth are those who, in some way, are not quite fitted for the course, and those who have previously had little or no opportunity of gaining experience with troops in the field, and have had to rely almost entirely upon books for their military education. It is a good indication of the zeal and earnestness pervading the commissioned ranks to find that competition for entrance to the College becomes keener every year. At the examination in 1911 185 candidates competed for the 36 vacancies available.

V.

THE STAFF COLLEGE, QUETTA.

By BRIGADIER-GENERAL WALTER BRAITHWAITE, C.B., General Staff,
Commandant Staff College, Quetta.

NATURALLY, in accordance with the eternal fitness of things, the Staff College, Quetta, models itself on the mother college at Camberley. Different climatic conditions impose certain modifications, but, apart from these, the underlying principles of Staff College work, and of Staff College spirit, at Camberley and at Quetta, differ in no particular.

Though the College was only instituted on the 1st June, 1905, there had been, so far back as 1875, proposals for a Staff College in India. There were various reasons brought forward, some founded on fact, some based on opinions, and some founded on imagination, which led to the proposal being dropped. The proposal had, however, one important result to the officers of the—as it was then called—Indian Staff Corps, in that the Home Government sanctioned a scheme by which a small number of officers were permitted to attend the course at Camberley. In 1889 and 1890 the Indian Government applied for sanction to increase the numbers sent to Camberley, but the Home Government did not find it possible to accede to this request. The natural result was that the number of officers who had received Staff College education, and who were available for staff employment in India, remained extremely limited. At the same time, however, there was a fully recognized necessity of having a body of trained Staff officers. Where to get them from was the difficulty. The field of selection of Staff officers was, on the other hand, very large, for the only qualifications required were, to have passed the ordinary examination for promotion to major and the prescribed language test.

Such was the state of affairs when Lord Kitchener arrived in India as Commander-in-Chief on the 28th November, 1902. The redistribution of the Army in India, which was one of the new Commander-in-Chief's first problems, resulted in a demand for a greater number of trained Staff officers for the field army than could

be provided under existing arrangements. Once again, therefore, proposals for the establishment of a Staff College in India began to take form. A small committee, under the chairmanship of Major-General Sir E. H. H. Collen, G.C.I.E., C.B., was appointed in 1904, the terms of reference being "to consider the proposal of the Government of India to establish a Staff College in India." The committee submitted its report on the 13th May, 1904, and put forward three schemes.

The third scheme was that already imposed on the committee in the proposal of the Government of India, and provided for the establishment of a college in India where the students would carry out a full two years' course. This scheme was not viewed favourably by the committee from a fear that "its adoption will certainly result in the gradual growth of two schools of thought, and in a divergence of views on Staff duties between the officers of the British and Indian Armies." This scheme was, nevertheless, adopted and the fears of the committee have, up to date, fortunately proved unfounded. Uniformity in training and instruction, and similarity of thought, between the two Colleges is a fundamental principle at Quetta, and it may safely be said that there is but one school of thought common to the two Colleges.

On the 31st March, 1905, an Indian Army Order appeared providing for the establishment of a Staff College in India, and promulgating the provisional regulations for the admission of the first class of officers.

It was decided to locate the College at Quetta, but, pending the provision of permanent buildings there, Deolali was chosen as its temporary home.

The syllabus of the entrance examination was that laid down for the Camberley College with certain minor modifications. The first class of 24 students, 7 of the British and 17 of the Indian Service, assembled at Deolali on the 30th June, 1905. Brigadier-General A. W. L. Bayly, C.B., D.S.O., A.D.C., was appointed first Commandant, with three Camberley graduates as Professors (the title of Professor was changed to that of General Staff Officer in 1910). In 1906, when the full complement of students was reached, three more Professors were appointed. The year 1912 has seen the first appointment of a Quetta graduate as General Staff Officer at the Staff College, Quetta.

At Deolali the College was located in the School of Musketry Quarters, rendered vacant by the transfer of the latter to Satara. The College remained at Deolali for nearly two years and was moved to its permanent home, Quetta, in April, 1907, Brigadier-General T. Capper, C.B., D.S.O., having been appointed Commandant in March, 1906, *vice* Brigadier-General Bayly, C.B., D.S.O., A.D.C., promoted.



FRONT OF COLLEGE AND MESS, AND LIBRARY WING.

While the move to Quetta was in progress, a party of 20 students, with the Commandant and Lieutenant-Colonel W. D. Bird, D.S.O., paid a visit to the Manchurian battlefields, being absent from India for three months in all. The party was most courteously treated by the Japanese military and civil authorities.

At the close of the tour the first batch of officers left the College. Those who had completed one year at Deolali joined at Quetta in June, as did also the officers successful in the recent entrance examination. The College at Quetta was opened on 1st June, 1907, by Lieutenant-General Smith-Dorrien, C.B., D.S.O., Commanding 4th (Quetta) Division. In order that the normal instructional year should run concurrently with the calendar year, and also so as to avoid the worst winter months at Quetta, it was arranged that the whole work of a year should be carried out between the 1st June and 20th December. This plan necessitated the abandonment of the attached course to other arms. It also necessitated the officers working without much cessation for seven months. In 1908 the Quetta College attained its normal and full course as described in the Staff College Regulations.

The year was divided as follows :—

- 20th February to 30th June, first term ;
- 1st to 15th July, short vacation ;
- 16th July to 31st August, second term ;
- 1st September to 15th October, attached course and manœuvres ;
- 16th October to 20th December, third term.

This arrangement was maintained from 1908 to 1911, but this year (1912) the following modifications have taken place :—

- 20th February to 15th May, first term ;
- 16th May to 4th June, spring vacation (and attached course, junior division) ;
- 5th June to 31st August, second term (15 days' summer vacation during this term) ;
- 1st to 30th September, attached course ;
- 1st October to 20th December, third term ;
- 21st December to 19th February, winter vacation.

The above terms and vacations are subject to slight variations which may be made at the discretion of the Commandant.

Once the full year was attained it was found possible to have no work on Saturdays.

The Staff College, Quetta, is some 3½ miles from, and about 500 feet above, the old cantonment of Quetta. The main building consists of a central block with two wings. In the central block are the entrance hall, reading room, map room, and offices. One wing contains the library, and the mess comprising ante room, dining room, card room, billiard room, and mess offices, kitchens, &c. ; and

in the other wing are three lecture halls, a Staff officers' room, litho. room, printing press room, draughtsman's room, and record room.

Government quarters in the neighbourhood of the College provide accommodation for the Commandant, 6 General Staff officers, 1 Medical officer, 18 married and 30 bachelor students. The quarters are convenient and comfortable, lighted by electricity, and have water laid on.

The site selected for the College was very bare and stony; but great efforts have been made to improve the surroundings, and judging by the progress made so far by the trees and gardens, there will be little to complain of under this head in a few years.

The country near Quetta is suitable for instructional purposes, though not of so good and varied a type as that round Deolali. The height of Quetta, on the other hand, is nearly 6,000 feet above sea-level and the climate far more conducive to work. Fresh ground can easily be got by undertaking short journeys by rail in four different directions. In practice it is found that, while it is quite possible to adhere to the general terms of the Camberley syllabus, certain variations in details are necessary to suit the different conditions and requirements of Baluchistan. One of the minor differences is that, owing to the fact that most outdoor work in India has to be done on horseback, a riding course is considered unnecessary. On Staff tours the conditions approximate more nearly to those of active service, and the inhospitable nature of the country in Baluchistan necessitates careful previous arrangements.

It will, perhaps, not be uninteresting to P.S.C. readers of *THE ARMY REVIEW* if I outline the arrangements necessary for, and the method of carrying out, a Staff tour at Quetta.

First of all, there are no hotels! The first thing is to select the terrain. The ground to be covered may lie wholly within the jurisdiction of one Political Agent, or it may extend to two or three adjoining political districts. The Political Agent (or Agents, as the case may be) have to be written to beforehand and asked to furnish assistance in various ways, such as the provision of escorts, the collection of supplies for man and beast at specified places on specified dates, and the furnishing of parties of coolies to assist officers' and mess servants in pitching and striking camps at the various places where it is intended to stay over night. The escorts supplied consist of "levy sowars" who are mounted levies of local tribesmen of a quasi-military character, and in return for a small retaining fee, place themselves at the disposal of the "politicals" to keep communications open, and to assist the civil authority in their districts in the maintenance of law and order. They are familiarly known by the sobriquet of "Catch 'em alive ohs!" They are useful to parties engaged in carrying out Staff tours in other ways than in purely escort duties, *e.g.*, from their knowledge of the country they make

good guides, and their services are occasionally requisitioned as horse holders. These services rendered to the Staff College, being outside the ordinary scope of their duties, are paid for by the College in cash, and on the spot. Coolies, similarly, have to be paid for there and then, as well as supplies of food for officers, their servants, and their horses at rates previously arranged for in consultation with the Political Agent to whose district they belong.

Having selected the area over which it is proposed to operate, the next thing is to get there. This is usually, though not invariably, done by train. The Staff College is some four miles distant from the railway station. This necessitates quite a train of Army Transport carts to take the baggage to the railway station. The railway authorities have to be previously notified of the requirements, in the way of accommodation for officers, servants, horses, tentage, and baggage. Horses have to be boxed, generally under the superintendence of one of the officers specially detailed for the purpose, and baggage has to be loaded in the special goods wagons provided, in sufficient time to admit of the train starting at the appointed time. Special trains are usually engaged for Staff College staff tours; and, in some of these tours, the special is retained throughout, and conforms as far as possible to the movements of the party. It is then useful as a sleeping place for officers at night should they happen to find themselves within reach of the railway line at the close of a day's operations. "Banking" engines have sometimes to be employed, and paid for, where gradients are steep; and a water tank for the conveyance of fresh drinking water for men and animals is generally added to the composition of the special train, this also being, of course, an extra call on the Commandant's grant for travelling.

In the matter of supplies the mess has to arrange for the despatch, to the scene of operations, of nearly all the food required by the officers. The resources of the country are very limited, and of a questionable quality. Occasionally chickens, eggs, milk, and fruit are to be had; and sometimes mutton. Firewood, for cooking and ablutionary purposes, can usually be obtained on requisition beforehand of the Political Agents who pass on their orders to the village "maliks;" but as a rule it is unwise to rely upon being able to purchase such things even on requisition through the Political Agents, and the mess has to be called on to send out food, drink, and smokes. The mess also arranges, when practicable, to send out letters to officers during their absence.

Medical and surgical appliances are carried by the Staff officer of the party together with printed instructions furnished by the Medical officer regarding what to do in the most likely kinds of sickness or accidents, as no medical aid from outside sources is to be looked for by a party operating in the wilds.

In the same way, veterinary precautions are taken in the event of injuries to, or sickness among, the horses of the party.

Officers carry revolvers on all Staff tours, for obvious reasons, in a country where the population is fanatical and has been known to turn "ghazi."

It occasionally happens, as in the Mountain Warfare Staff Tour and the Cavalry Staff Tour, that transport carts, or, where the country traversed is unsuited for wheeled transport, transport pack mules, have to be sent out from Quetta to accompany the party, and transport its belongings from place to place throughout the tour. This, of course, necessitates due warning being given to the transport authorities to enable them to lay in fodder for their mules, and food for their drivers, at the various places indicated, sometimes many days' march from Quetta. This transport is usually sent out in advance and meets the party at the place where the railway line is abandoned and where the Staff tour begins; it is dismissed wherever the tour ends and finds its own way back to Quetta by march route in its own time.

Each officer provides his own tent, and the mess sends out tents for messing and for conferences. Tables and forms for the mess and conference tents have likewise to be carried.

In addition there are a host of little things that require forethought and arrangement, such as picks and shovels for constructing and filling in latrines, picketing gear for horses, &c.

It is sometimes possible to obtain the use of bungalows at places where either the political authorities, the Public Works Department, or the railway authorities have erected them for the occasional use of their officers when on inspection duty. There are also a very few "dak" bungalows, the right to use which is governed by priority of arrival. The political authorities, the Public Works Department officials, and the railway authorities always readily place their bungalows at our disposal when asked to do so, and they are sometimes useful as conference rooms; but the accommodation they provide is very limited.

From all of which it will readily be seen that the post of Staff Officer to the Directing Staff is hardly in the nature of a sinecure. In the selection of an officer for the post of Staff Officer to the Directing Staff regard has to be had to officers' linguistic attainments, Pushtu being the most useful vernacular in these districts.

So much for the preliminary arrangements. In regard to the Staff tour itself, the party generally arrives by train, unboxes its horses at some wayside station, where there is frequently only a ramp big enough to allow one horse to be unboxed at once, mounts and proceeds to start work at once. Meanwhile the Staff officer of the Junior Division unloads the baggage, tents, &c., and proceeds to pitch camp to which, when the party has completed its work,

hungry and thirsty—especially thirsty, as Baluchistan is a most thirst-producing country—returns to find everything ready for dinner and, after dinner, for work. Next day after the party has started off again, on horseback, accompanied by its escort, the camp is struck, packed on its mule transport, and shifted to its new venue. Here it is again pitched, supplies collected, and everything made ready for the advent of the party which, meanwhile, has perhaps covered 30 or 40 miles—sometimes as much as 50 miles—on horseback, and so on.

A further modification in the course at Quetta is entailed by the fact that no visits can, of course, be made to European battlefields. There are no battlefields which have been the scene of conflicts between forces armed and organized according to modern principles nearer than Manchuria or South Africa. Unfortunately it has not been found possible to repeat the visit to Manchuria.

European languages are not taught at Quetta, but officers can, should they so desire, study Oriental ones.

Except, however, in such matters as the above, and in other small differences imposed by local conditions, the course at Quetta is kept as closely as possible on the lines laid down for Camberley, and includes a Naval and Military Staff Tour, in which the students of the Senior Division co-operate with naval officers of the East Indies Squadron, a co-operation which is of enormous benefit to the students, unaccustomed as military officers in India are to working with the sister service. The value of this tour has been greatly enhanced during the last two years owing to the fact that the Admiral in command of the East Indies Squadron has been a former Captain of the Royal Naval College (Rear-Admiral Sir Edmund J. W. Slade, K.C.I.E., K.C.V.O.) and an officer, during whose command of the Royal Naval War College, Portsmouth, the first Naval and Military Staff Tour between the Staff College, Camberley, and officers of the Royal Naval College was instituted. In this respect again, therefore, Quetta has been able to follow on the same lines as Camberley in promoting and practising co-operation with the sister service.

The Staff College, Quetta, is under the direct orders of Army Headquarters, India, and is a self-contained unit, communicating direct with Army Headquarters on all matters. At the same time its proximity to—and, in fact, inclusion in—the cantonment area of Quetta gives its officers exceptional opportunities to keep in touch with active military work. The General Officer Commanding the 4th (Quetta) Division—whose Headquarters are at Quetta—and his staff, do everything in their power to help the College. The Commandant has only to ask for facilities to be accorded him, either in the direction of the loan of troops for night operations, or indeed for anything practical which will help instructional work at the College, for sanction to be readily granted. The General Officer

Commanding finds a hundred ways of helping the College in matters which conduce to its comfort and well-being. In some small degree the College, in its turn, is able to assist the General Officer Commanding and his staff, and this reciprocal help establishes between the Headquarters of the Division and the College a bond of unity which is productive of nothing but good to both.

Quetta is a large garrison. It consists of 1 Indian Cavalry Regiment, 3 British Infantry Battalions, 6 Indian Infantry Battalions, 3 Mountain Batteries and 2 Heavy Companies Royal Garrison Artillery, 2 Field Companies Sappers and Miners besides 2 Mule Corps, 3 Siege Train Bullock Troops, and 1 Company each of the Army Hospital Corps and the Army Bearer Corps. There is no lack of sports and games to keep the Staff and students physically, as well as mentally, fit. The Quetta Hounds are a flourishing pack, and arrangements are always made whereby officers can hunt two days a week, the work being postponed to suitable hours to allow of this. The cricket and polo grounds are four miles from the College, but this distance does not prevent full use being made of them on College days—two days a week for polo and, practically, one day a week for matches at cricket. Hockey also flourishes on a ground only a mile and a-half from the College. In addition to the above, there are squash racquet courts, a stické court, and tennis courts in the College area, and also a riding track and schools for training polo ponies. The Quetta College worthily upholds the traditions of Camberley in the matter of games and sports. I need say no more, therefore, on this point except that the familiar owl crest worn by its representatives gains its full share of victories in cricket, polo, racquets, cross-country riding, &c.

It is not possible to close this short, and, I fear, somewhat inadequate account of the College without alluding to, and acknowledging, the help of the Mother College at Camberley. This help is freely sought and as readily given, and extends to all spheres of college activity. A regular correspondence takes place between the Commandants, and each endeavours to keep the other fully posted in all matters which may conduce to the good of the respective Colleges. And so may it always be. And so it will always be, for in no other way can the College at Quetta keep abreast of modern thought at home. And in no other way can the two Colleges fulfil their obligations to the Army for which they exist; and in no other way can the graduates of Quetta find themselves on a true equality with the graduates of Camberley. To Quetta as well as to Camberley is the motto applicable: "*Tam Marte quam Minerva.*"

VI.

A CLASH OF OPINIONS.

A REPLY TO THE ARTICLE "OUR REQUIREMENTS FOR HOME DEFENCE," IN *THE ARMY REVIEW* OF JULY, 1912.

By COLONEL A. KEENE, D.S.O.

THE article, "The Proposals of the National Service League," which appeared in the April issue of *THE ARMY REVIEW*, ended with the words, "We believe that the proper function of the Territorial Force is to give immediate strategic freedom to our fleets and to our regular soldiers on the outbreak of war, and we are convinced that the Territorial Force cannot do this unless it is much stronger in numbers than at present, unless the men composing it are more highly trained, and unless their war training is carried out before and not after the fighting has begun."

The writer of "Our Requirements for Home Defence," politely but clearly accuses the National Service League of "misguiding public opinion by urging that the existing organization for home defence is insufficient for our requirements, when in fact we have reasonable grounds for believing that it is sufficient." Here we have a sharp clash of opinions upon the most vital of all national questions, the writer in *THE ARMY REVIEW* insisting that our arrangements for home defence are sufficient, while Lord Roberts, Lord Curzon, Lord Milner, Admirals of the Fleet Sir Edward Seymour and Sir Gerard Noel, supported by thousands of retired naval and military officers, who are free to speak their minds, persist in maintaining the contrary. The point at issue, *i.e.*, the sufficiency or insufficiency of the existing organization for home defence is one which cannot be finally settled without a first-class war, and even that expensive experiment might fail to decide it. It is, however, obviously essential that the closest possible examination should be made into the arguments on which the opposing sides base their sentiments.

But before going further it is advisable to clear the ground by seeing how far the two sides are in agreement.

The writer in THE ARMY REVIEW sums up our requirements as follows :—

- (1) A sufficient Navy to secure us against invasion and to provide a reasonable degree of security for the ocean trade routes.
- (2) A Home Defence Force to deal with possible raids.
- (3) An Expeditionary Force highly trained, fully equipped, and complete in every detail, capable of being rapidly mobilized and of being transported without delay to wherever it may be wanted.
- (4) Adequate garrisons for our coaling stations and harbours in all parts of the world. Under this head we must include provisions for the relief of garrisons furnished from home and also the garrisons of India.

The views of the National Service League were very clearly stated by Lord Roberts in his address on the 22nd July at the Mansion House. He said that we require :—

- (1) A supreme Navy, the standard for which has been laid down by the present Government as that of a 60 per cent. superiority over the next strongest Navy.
- (2) A Regular Army to act as a garrison and police force to our Empire in time of peace and as a striking force in time of war.
- (3) A Home Army of such a character as regards numbers and training as would enable it to free the Navy and the Regular Army from the primary duties of home defence by providing direct security against an attempted invasion of these shores, and, at the same time, to prove a potential reserve to be utilized, should the occasion require, in replenishing the Regular Army fighting for the very existence of our Empire abroad.

These two statements emphasize indeed the difference of opinion between the opposing schools as to the strength and quality of the force required for Home defence, but they show that both sides unite in the demand for a Navy of such power as the Admiralty may ask for, and they agree in keeping the Home Defence Force entirely distinct from the Regulars, who are required for police and garrison duties of an Imperial character and who will have to furnish troops for oversea expeditions.

If we had to deal with theory alone it would be at once obvious that the National Service League ideals providing us with a Home Defence Force which would protect the country against *invasion* would be preferable to those of the writer of the article referred to which contemplate a "Home Defence Force to deal with possible raids."

But the writer of the article in THE ARMY REVIEW for July justifies the modified demands on the plea that "We have been assured by

responsible authority that so long as we have a naval superiority in Home waters, 70,000 men in all is an outside estimate of the hostile forces which it might be possible to transport to our shores."

The National Service League urges in reply that it is unwise to base our calculations on the supposed incapacity of our enemy to do this or that. We point out that the Boers who went to war against us in 1899 had their territories overrun, their farms laid waste, their sheep and cattle killed or driven off, their women and children taken away and shut up in concentration camps, because they were assured on what they considered good authority that we had neither the men nor the resolution to enable us to place and maintain large forces in the field at a distance of 6,000 miles from our base. We ask people to recall the "assurance" given to the Russian Ministry of War by Admiral Vitgeft, Chief of Admiral Alexiev's Naval Staff, which was distinct enough in all conscience. It was worded thus: "According to the present relative strengths of the two fleets, the possibility of ours being defeated is a contingency that need not be considered, and until it has been destroyed it is inconceivable that the Japanese can land at Niuchang or any other spot on the Gulf of Korea." This report was endorsed by the Viceroy Alexiev himself.

We point out that a similar miscalculation was made by the Russian Minister of War, who estimated that only 150,000 Japanese could be put across the sea, to be followed possibly by another 60,000, whereas the Russian official history states that the Japanese actually employed 1,185,000 men in the war.

The writer of "Our Requirements for Home Defence" also states that "the responsibility of the Chiefs of the Army and Navy . . . is limited to advising as to the size and nature of the forces required to ensure a reasonable chance of success in war *under any given conditions* and as to how the greatest military value can be obtained for *any given sum of money* provided by the Government for military purposes."

Members of the National Service League are not, it is believed, ready to admit that "the responsibility of the Chiefs of the Army and Navy should be limited to advising as to how the greatest military value can be obtained for *any given sum of money* provided by the Government for military purposes."

We would not for one moment suggest that the Chiefs of the Army and Navy should interfere in deciding the foreign policy of the State; that is the function of the Cabinet. But the policy having been decided, surely the Chiefs of the Army and Navy should be consulted as to the quality and the amount of the naval and military forces required to give effect to that policy.

The point is admirably stated by Admiral Mahan in the Introductory Chapter to his lectures on Naval Strategy. In that he asks

his hearers to remember a saying of Nelson's that "An officer should have political courage." And the American Admiral goes on to say that: "Political courage, to be well based, requires political knowledge as well. That you may more effectually concentrate upon this necessary knowledge, avoid dissipating your energies upon questions interior to the country, questions financial, sociological, economical, or what not." This surely means that the chiefs of the fighting forces of a nation are to be fully informed as to world politics and to know clearly the part which their own country intends to take therein. They can then offer their advice, which should be independent of financial and economical considerations and given on military grounds only.

We may now for a moment return to the crux of the question. Is the author of "Our Requirements for Home Defence" justified in his opinion that "the Territorial Force, kept even approximately up to the strength, together with the unallotted Regular troops and various Special Reserve units not required, at any rate immediately, outside the United Kingdom, would suffice for this (*i.e.*, dealing with raids) so long as we have a naval superiority and so long as specially important points within reach of possible raids are adequately fortified and garrisoned?" If we analyse this, we see that the unallotted Regulars and the Special Reserve units have their work fully cut out in garrisoning the fortified positions and, at the same time, furnishing drafts to the forces employed outside the United Kingdom, so that the Territorial Force alone is left for dealing with raids. The manner in which this is to be done is thus indicated in the article under discussion: "It seems to us that whatever opinion may be held as to the capability of the Territorial Force to stand up to Regular soldiers in a square fight, there can be no reasonable doubt that it would worry such a raiding force (that is, one which attempted to move far into the country) to death, or into surrender in a very short time, wearing it out by a process of attrition if it could do nothing better."

In one view no class of troops could be so ill-suited to the kind of work above suggested as the Territorial Force. Irregulars of the stamp of the Boers or Afghans—mobile, hardy, good shots, accustomed to find their way across country, able to look after themselves and their mounts, independent of transport—men such as these would be admirably adapted to the guerilla tactics suggested. But such men are the very antithesis in every particular to the bulk of the men who compose our Territorial Force. We confidently assert that this Force would wear itself out "by a process of attrition" long before it wore out the kind of raiding force which we may expect to see some day in this country. The Territorial Force with a stiffening of Regulars would, no doubt, do well behind fortifications, or it would furnish excellent officers and men for drafting to the Regulars, but

when it is remembered that the Force would require 86,000 horses on mobilization and that these horses would be untrained, it is justifiable to say that it cannot be considered "mobile," and that it would be peculiarly unfitted for the very active kind of work suggested for it.

In his recent address at the Mansion House, Lord Roberts gave it as his opinion that to deal with an invasion of even 70,000 highly-trained soldiers a field force of at least 300,000 partially-trained men is required in addition to some 200,000 men needed for the protection of the naval bases and arsenals and to garrison the principal places in Great Britain and Ireland.

Had the proposals of the National Service League been accepted in 1907, and had training under these proposals been commenced in 1908, we should have the following result :—

Recruits trained in—

1908	..	..	..	..	..	..	150,000
1909	..	..	..	..	..	..	150,000
1910	..	..	..	..	..	..	150,000
1911	..	..	..	..	..	..	150,000
1912	..	..	..	..	..	..	150,000

Posted to Territorial Force—

1909	..	..	..	..	..	..	142,000
1910	..	..	..	..	..	..	135,000
1911	..	..	..	..	..	..	128,000
1912	..	..	..	..	..	..	142,000

Passing to Reserve 120,000

In other words, the Territorial Force would have consisted of 405,000 men all over 19 years of age and fairly well trained ; 120,000 men would have been passing to the Territorial Force Reserve, and there would have been 150,000 recruits in training ready to step into the vacancies created by time-expired men. Thus the numbers demanded by Lord Roberts would have been available.

Contrast this with what we actually have got : a Territorial Force of about 275,000, a Reserve for the same of about 500, and a Special Reserve of about 54,000, or in round numbers a total of 330,000 men including recruits and immature boys.

It appears evident, therefore, that if we are right in keeping up a Regular Army enlisted on a voluntary basis for garrison duty overseas and for fighting abroad, supported by another distinct force enlisted for Home defence only, then nothing short of the National Service League proposals will give us the Home Defence Army of our needs.

We cannot accept the conclusion of the author of the article that " the League's proposals would give us a stronger defensive force than we appear to require," because we believe that the great Napoleon

was absolutely correct when he wrote to the King of Naples in 1806 and told him: "You should make a start from such a powerful defensive order that the enemy will not dare to attack you."

Here it is open to our critics to say that the League should finish the quotation from Napoleon, who wrote in the same letter: "The whole art of war consists in a well-reasoned and extremely circumspect defensive followed by rapid and audacious attack." They might, and they do, suggest that the League proposals do not add sufficiently to the offensive power, for in the article under reply the following words occur: "In our view, it is a principle that if additions should be required to our military forces, they should be made, once the necessary security at Home has been provided for, not to our defensive but to our offensive forces, and if the lever of universal liability to serve the country is ever to be applied, this principle must guide us in applying it. If the Oversea Dominions, as well as ourselves, accept this principle, the offensive as well as the defensive strength of the Empire against attack might be vastly increased, in our opinion, if increase should be considered necessary."

The National Service League certainly considers it necessary that our military power should be increased, and it gives the following reasons: The Army Reforms of 1907 were, apparently, based on the statement that two raids of 5,000 men each were the outside we had to guard against. This number has since been raised to that of a possible attack of 70,000 men. Since these statements were made the relative strength of the German Navy has greatly increased, while our military forces have decreased. When our naval superiority was overwhelming, the Government asked for a Territorial Force of 313,000 men and a Special Reserve of 80,000. Now that our relative naval strength is much lower, we are told that a Territorial Force of 270,000 men and a Special Reserve of 53,000 is quite good enough.

What is now required is what Lord Roberts asked for in the House of Lords in April, 1911. He stated that we have neither a Home Army such as is needed for the defence of this country, nor an effective Regular Army to protect our Imperial interests abroad, and demanded that "the condition of the Army should be inquired into—not by a Royal Commission, nor by any Commission which would probably have no more satisfactory result than the two former Commissions—but by a small Committee of experts who have no axe to grind."

If the powers of the Chiefs of our Army are really limited, as stated in the article, "Our Requirements for Home Defence," to advising "as to how the greatest military value can be obtained for any given sum of money provided by the Government for military purposes," it is high time that the small Committee of experts asked for by Lord Roberts should be assembled. We are convinced that such a Committee would report that the military forces we now require

are not forthcoming under the voluntary system alone, nor can they be provided without expenditure greater than that allowed under the present Army Estimates.

The National Service League does not stand or fall by its proposals, but by its principles. Its present scheme is based on the reforms brought in by the War Office and on the conclusions arrived at by the Norfolk and Elgin Commissions. There is every reason to hope that the League would see its way to supporting the recommendations of any "Committee of experts who have no axe to grind," and the report of such a Committee would in all probability put an end to the ceaseless wrangling and jarring which is now going on.

There ought to be no difficulty in getting together a Committee of experts which would command the confidence of the British public.

NOTE ON THE ADMINISTRATIVE AND FINANCIAL ASPECTS OF THE PROPOSALS OF THE NATIONAL SERVICE LEAGUE AS CRITICIZED IN "THE ARMY REVIEW," JULY, 1912.

While the great question at issue remains unsolved as to the adequacy or inadequacy of our present arrangements for Home Defence, it is not worth while to spend much labour on discussion of details in the proposals put forward by the National Service League. At the same time it is not desirable to let judgment go by default, and it is proposed to deal with some of the points raised in the article of "Our Requirements for Home Defence."

(a) *Cadets available for training of ages 14 to 18; number who trained.*—We have the experience of the Australian Commonwealth to guide us. The following official figures were given by that Government regarding boys whose fourteenth, fifteenth, sixteenth, and seventeenth birthdays fell in 1911. They are as follows:—

Total registrations	..	..	..	..	..	153,637
Medically examined	..	..	..	..	..	102,194
Found medically fit	..	..	..	..	..	95,772
Exemptions (including medical)	..	..	..	..	..	55,910
Actually in training at time of report	..	..	..	..	..	87,369

It may safely be assumed that in the British Isles the proportion rejected for physical unfitness would be greater than in Australia; we should also lose a good many lads by emigration. On the other hand, a great many exemptions were granted in Australia to lads who resided over five miles from any training centre. The League thinks it quite fair to estimate that, one way and another, the proportion of cadets of ages 14 to 18, who would actually be trained, would approximate to that taken in Australia. About 87,000 were actually taken in that country, the population of which is almost

exactly one-tenth of that of the United Kingdom, and it is not unreasonable, therefore, to estimate that we should get between 800,000 and 900,000 lads between 14 and 18 for actual training.

(b) *Training Staff.*—The difficulty of getting a training staff has already been surmounted both in Australia and in New Zealand. Once get the national mind behind a system and difficulties will be overcome.

(c) *Comparison between the numerical strengths of the force to be provided by the National Service League proposals and of the forces now existing.*—In replying to this, we must begin by an admission that the point as to the 80,000 men taken to replace the present Special Reserve was not made sufficiently clear in the League proposals. After compulsory training under the League proposals had been in operation for four years there would be some 120,000 men passing yearly into the Territorial Force Reserve. There is every reason to believe that the offer of a bounty of £1 10s. a year would induce at least 80,000 men from among these trained citizens to accept the obligation to serve abroad with the Regulars in case of war. It must also be pointed out that the League, in the Home Defence Army of 400,000 men, does not include the 150,000 recruits undergoing training. The total establishment asked for by the League, inclusive of recruits, is 550,000; the establishment of the Territorial Force, including recruits, is 313,000. The increase in establishment, therefore, is 237,000, not 7,000, as suggested by the writer of "Our Requirements for Home Defence."

Finance.

(a) *Cadet training.*—In reply to our quotation of the cost of junior cadet training in New Zealand, which is 10s. per head per annum, the critic in THE ARMY REVIEW quotes the cost of the Junior Contingent of the Officers Training Corps in this country, viz., £1 12s. per head. To our mind this only proves once more that the voluntary system is needlessly expensive.

We have been assured by a gentleman, who is in a position to know, that the cost of the compulsory cadet training of boys from 16 to 20 in Jersey is very small indeed. When an endeavour was made to ascertain the cost of this training from official sources, the reply received was that there was "no information available in the War Office on this subject, but it was presumed that the information could be obtained at the Home Office."

It certainly seems worth while to investigate this subject, for in an article in the last issue of the *Nation in Arms* it was shown to be fairly useful training. The article in question states that in the first year the boys received instruction from the Militia Permanent Staff in squad drill and physical exercises until they have completed 40 drills. In the second year the training consists of another 40

drills, in which company drill and the handling of a rifle are taught and practice on a miniature range with the aiming tube is carried out. In the third year there is a thorough musketry training, finishing up with a full range course of 15 practices, the last five of which are exactly the same as the classification practices fired by recruits of the Regular Army. This system has the result of furnishing the Jersey Militia with well-trained recruits, and it would be interesting to the public at large, if not to the War Office, to know what this training costs.

(b) *Adult recruit training.*—In the criticisms under this head, the writer in *THE ARMY REVIEW* makes a very interesting quotation from the calculations on which Mr. Arnold Forster based his estimate of nearly £28,000,000 as the “Cost of Conscription” (Command Paper 1909 of 1904). If the estimates of the National Service League are unreliable, there can be no better way of refuting them than by publishing the details of the calculations made by the War Office for Mr. Arnold Forster.

Till this is done the League may rest satisfied with the fact that the £28,000,000 which Mr. Arnold Forster estimated in 1904 as the “Cost of Conscription” has been reduced by easy stages till it has shrunk to the sum of “four to six millions” mentioned in a recent speech of the Secretary of State for War in the House of Commons.

VII.

THE NORTH-EASTERN FRONTIER—ASSAM.

By COLONEL L. W. SHAKESPEAR.

NOW that this little-known province and its borderland have come so prominently into public notice through the massacre by the Abors of Mr. Noel Williamson and Dr. Gregorson in March, 1911, and the punitive expedition recently sent against this tribe, it may not be without interest to review briefly our connection with this province and its wild frontier, chiefly with relation to the Abors and Mishmis in the extreme north.

DESCRIPTION OF ASSAM.

Assam is divided into two large districts, the one with which we are mostly concerned being Upper Assam, lying on either side of the Brahmaputra, and surrounded by the Bhutias, Akas, Dufflas, Miris, Abors, and Mishmi tribes in the hill country to the north; while to the east and south are the Singphos and Naga tribes. The other division is the Surma Valley, through which the Barak River runs, with the districts of Cachar and Sylhet, having on their eastern and southern borders the Manipuris and Lushais. These two districts, roughly separated by a mass of mountains known as the Barail Range and the Jaintia Hills, are somewhat sparsely populated to the north; while the southern portion is densely populated and closely cultivated. The Assam Valley is fairly thickly covered now with tea-gardens, chiefly from Dibrugarh to Gauhati; while in the hills south of Sadiya lie the rich coal mines of Margherita and oil wells of Digboi and Makum.

BRITISH RELATIONS WITH ASSAM.

It was in 1765 that the English first appeared on the scene of Assam history, which, as far as is authentically known to us, had been the scenes of bitter warfare since the early part of the thirteenth century between nations which alternately rose into power, such as the Ahoms, Koches, Cacharis, in which eventually the Ahoms overran the country after driving the Cacharis down into the North Cachar Hills, where a small community now represent what was once a powerful

clan, with large cities and evidences of a high order of civilization, as shown in the wonderful ruins at the foot of the Naga Hills and near Tezpur, now covered with almost impenetrable forests. The Ahoms were Shans, an Indo-Siamese race settled centuries ago in the Upper Irrawadi, whose capital—Mogoung—is still extant, whence a wave of invasion spread into Upper Assam. They were supreme in this locality when the whole of the Muhammadan possessions up to Goalpara were ceded in 1765 to the English, and formed a part of the district called Rangpur. It was the rebellion of the Momariah (a strong religious sect) against the Ahom authority with a certain success, which led the Momariah to cross the border and attack Rangpur.

At this time also the Ahom king sent a request to Mr. Lumsden for assistance to crush the rebellion, and as Lord Cornwallis deemed it necessary to restore order along the border, Captain Welsh with six companies of Sepoys was ordered to clear out the Momariah and move on Gauhati in 1792. This town was given up on Welsh's approach and handed back to the Ahom king. He was, however, drawn into a severe fight on the opposite bank of the Brahmaputra, where, although successful, his losses were such that he called for reinforcements, and a full battalion was sent up from Bengal in April, 1793. Welsh was given a free hand to assist in restoring order for the Ahom ruler, and with his whole force moved against Jorhat, where after a stiff encounter he defeated the rebels. Although the trouble was almost at an end the Ahom king declined to dispense with the help of Welsh and his troops, so these stayed on, and measures of pacification were tried with the rebels, but without avail. Welsh was about to undertake another expedition to compel their submission when Sir John Shore, a "peace at any price man," ordered Welsh to return, which was done in July, 1794. Welsh's prophecies to Government were soon fulfilled, for disaster and misgovernment at once followed, and all was chaos, in which we made no attempt to interfere till 1816, the Ahoms holding their own with difficulty. These, unable to obtain English aid, called to the Burmese for assistance, and a force crossed the Patkoi Range and remained a year restoring order, after which they returned to Burma with a large indemnity. But not for long, for two years later their services were again requisitioned. This time they came to stay, and after a series of actions they were soon masters in Upper Assam and to a certain extent also in the Surma Valley, which they entered viâ Manipur. The few years of rule in Assam was marked by much oppression and spoliation of the people, and life in that province became unbearable. It came at last to an end when the trouble which the Burmese caused, not only here but in Sylhet and on the Chittagong border, induced the Governor-General to declare war. Simultaneously with the advance of the forces on Rangoon in the winter

of 1825-26 a strong column was sent up the Brahmaputra, where in two engagements near Jorhat, and Rangpur the old capital, the Burmese were completely routed, and practically then and there ejected from Assam, as well as from the Surma Valley.

The state of anarchy of the last few years had emboldened the wild border tribes to start raiding on the plains, and in this year the Singphos becoming more aggressive, three companies of the 57th Native Infantry had to proceed against them from Jorhat to enforce their submission. This constituted our first touch with any of these savage and interesting tribes. Assam now came under British rule. The Momariah, who had contributed so largely to the downfall of the Ahom power, were, however, allowed to rule in the extreme north, where Dibrugarh now stands, as they executed an agreement of allegiance to the English. The first Commissioner of Assam, Mr. David Scott, with two assistants (Captains White and Neufville), now commenced in 1826 to administer the country, with headquarters first at Goalpara, later at Gauhati. In 1838 it was found desirable to take over into Assam proper the entire northern part of the district (Dibrugarh), now known as Lakhimpur; and owing to petty raids by Khamtis—who dwell between the Mishmis and Singphos—the Political Agent (Colonel White), with a small force of Sepoys, established an advanced post at Sadiya, where the following year they were attacked by the Khamtis, and the Agent and many with him lost their lives. This led to a retaliatory expedition, in which there were numerous casualties on both sides. By 1842 the whole of Assam was brought under the administration of the present time, this condition having existed in the Surma Valley some 10 years earlier. The Mutiny only affected Assam in a minor way when the 34th Native Infantry, then garrisoning Chittagong, rose and marched into Cachar, but were met and broken up in a sharp fight by the Sylhet Light Infantry (now 8th Gurkha Rifles) near Partabgarh. Shillong, which was first started about 1866, became the headquarters of the Assam Government in 1873, and Gauhati has since that date dropped from the important position which it held for centuries.

THE AKAS.

Beginning with the wild tribes on the north bank of the Brahmaputra who, in the old days of a strong native rule in Assam, appear to have been kept in good order probably by drastic measures, the first to be noticed are the Akas, a small tribe with a reputation for violence, and allied to the Nagas. The English first came in contact with them in 1829, when the depredations of the Tagi Raja necessitated action being taken. He was captured, and was imprisoned for four years in Gauhati Jail, which it was hoped would teach him better ways; but he at once returned to his old ways, eluding capture, and in 1835 he and a party treacherously obtained entrance to the outpost

of Baliapara, held by a small garrison of the 42nd Assam Light Infantry (now 6th Goorkha Rifles), and managed to cut up the entire detachment of 24 Sepoys. He maintained a guerilla war for another seven years, evading capture, until he vanished peacefully from the scene. In 1875 trouble again broke out over boundary demarcation, and an unsuccessful expedition was sent into the low hills. On this followed a blockade, which a few years after brought the Aka chiefs to their senses.

In 1883, when the Calcutta Exhibition was coming off, a native official was sent to the Akas to ask him to supply articles for the Exhibition, and also for a man and a woman to be sent down to be modelled there. The Aka chief took offence at the request and detained the official. This was immediately followed by a raid on Baliapara, when two forest officials were captured amongst many others. In December that year General Sale Hill entered the Aka country with a force of 700 rifles of the 43rd Assam Light Infantry and 12th Bengal Infantry, two guns Kohat Mountain Battery, and 450 coolies. The advance was rapid, and was opposed at the Bharoti River, where the Akas attacked the camp at night, causing us one killed and seven wounded. A few days later the chief village Mehdi, strongly stockaded, was assaulted. The guns, however, took the heart out of the Akas, who did not wait for the bayonet. Two days after the captives were sent in, and in January, 1884, the force was withdrawn.

THE DAPHLAS AND MIRIS.

We are next concerned with the Daphla and Miri tribes, the latter of whom have never given us trouble and stand in some sort of servile relation to their powerful neighbours, the Abors; while the former tribe, with whom we first came in contact in 1835, has given in earlier days a good deal of annoyance. Their country, which is like the rest of the border, is hilly and densely forest clad, is much more accessible than that of the neighbouring tribes; while a tribal subdivision, the Apa Tanangs, own a magnificent elevated plateau laid out in highly-cultivated terraces, which was once visited by Mr. Macabe, who also found their country full of articles of Chinese manufacture, though what communication there may be with that country and Thibet and China we do not know. The Daphlas and Apa Tanangs are thought to number about 25,000, and when we arrived in Assam they had a formidable reputation, which, however, did not survive a closer acquaintance. Owing to a determined raid in 1835 into the plains the first military expedition went into their hills, which, after a little desultory fighting, rescued certain captives and established outposts along their border. Until 1852 there were a few small raids, which were dealt with by blockade measures.

In 1871 they again gave serious trouble, which started in

a curious way. A severe outbreak of whooping-cough occurred amongst the Daphlas living on and in our border, which spread to the hill villages. These latter demanded compensation from the men on the plains among whom the malady started. As this was refused, the hill Daphlas raided a village on the border, killing a number and carrying off 35 prisoners. An expedition was at once ordered, but interminable delays took place owing to disagreements between the civil and military, and eventually a force of 600 rifles of the 44th Assam Light Infantry (now 8th Goorkha Rifles) were advanced, under command of Major Cory. The Political Agent, in whose hands the control of the expedition rested, deeming the force too weak and having an exaggerated idea of the Daphla strength, refused to allow Cory to enter the hills to attempt the rescue, but contented himself with a long blockade, which produced no effect on the tribe. In 1874, therefore, Colonel Stafford with a column of 1,000 rifles, three mountain guns, and some 1,500 coolies, entered the hills. The Daphlas made no resistance, but paid up fines and returned the captives. Little or nothing was done by this force in exploring the country, and they returned amidst a clamour from Government over wasted money. But it was projected on an unnecessarily large scale by the civil authorities, by whom it was controlled entirely, and by whom it was counted a political success.

THE ABORS.

We now come to the two tribes, round whom at present the chief interest centres. The Abors occupy the hills between the Dihong (San Po) and Dibong Rivers, and next to the tribes of the Naga Hills are the most formidable and physically superior to their neighbours. It is stated the Abors can turn out some 10,000 to 15,000 fighting men, and the experience of the past has encouraged them to think the most of their powers. Their country is very mountainous, covered with dense forest; and as various expeditions have merely penetrated the outer fringe of hills, little of what lies beyond was known to us. They are a people of Thibetan origin, their principal weapon a long straight "dao" comes from that country; but spears and arrows are also used, the latter being prepared for war with a dab of paste just behind the head made of pig's blood and aconite. A few old Tower muskets and muzzle-loading guns are also to be found in most villages. Unlike Singphos and Nagas they do not stockade their villages, but build their defences at a distance to command all approaches, and have frequently stood very stoutly behind them. Like all these savage tribes they rely mostly on night attack, ambuscades, and booby traps, on which they will expend great labour. This tribe was first visited in a friendly way by Messrs. Bedford and Wilcox in 1825-26, when Membu was reported as being the most important of the tribal

settlements, numbering 300 odd houses. Some years after this an early Political Agent describes them as being the most powerful and best disposed of all the hill tribes.

It was in 1848 that they first gave trouble, raiding and carrying off a number of Cachari gold washers, which necessitated Major Vetch taking a small force over the border. At first there was no opposition and the Abors gave up captives, on which Vetch retired and had his camp heavily attacked that night. The Abors were beaten off, but the troops returned across the border, unwilling to risk anything further. In the succeeding years a number of outrages occurred, culminating in 1858 by a serious attack on a village but 6 miles from Dibrugarh. Kebong Village harboured the chief offenders, and an expedition under Captain Lowther, with 110 rifles and two howitzers, went across the border against Kebong, 20 odd miles above Pasighat. With this force went the Deputy-Commissioner, whose authority was supreme, and between whom and the Military Commander disagreements unfortunately arose. The Deputy-Commissioner placed a great deal too much reliance on faulty information with which he furnished the Commander. A point 4 miles from Kebong was reached where a stockade was met with, from which fire was opened and a bugler killed. The approach being difficult, the force withdrew to renew the attack next day; but that night the Abors sturdily attacked the camp, the force became demoralized, and retired out of the hills with a loss of 4 killed and 22 wounded. As all the surrounding villages by now had joined Kebong the discomfited expedition made ignominious haste to retire upon Dibrugarh. Both officials were severely blamed by the authorities.

The repulse of this expedition encouraged the Abors to further aggression, and the following year—1859—another force, under Colonel Hannay, with 60 gunners, 2 howitzers, 2 mortars, and 300 rifles of the 42nd Assam Light Infantry was ordered across the border upon Kebong. This force advanced as the previous one had done to Pasighat, and then attacked two stockaded positions at Runkang and Manku, from which the Abors were driven with a loss to us of 1 killed and 44 wounded.

The resistance of the enemy, and the difficulties of the country and supply, now caused a retirement to take place, and the objective of the expedition was not attained.

Another determined attack by the Abors in 1862 on a village near Dibrugarh and on the south side of the river obliged a recourse to punitive measures again, and Colonel Garston led another force of similar strength against Runkang. This force reached Lallichapri, where the civil official arranged a meeting and parley. A treaty was patched up with the tribes, who agreed to respect the border on consideration of a considerable yearly allowance of “posa,” consisting of iron hoes, salt, rum, opium, and tobacco. Later

this was turned into a monetary stipend of 3,400 rupees. Small wonder that the Abors, after all these futile efforts at punishment on our part and their recent substantial gain, should have had an exaggerated notion of their own powers. Their outrages in various ways continued, and still Government continued this "posa." In 1881 they crossed into the Mishmi country and practically controlled one of the trade routes into the interior, which necessitated a strong outpost of 300 rifles being stationed at Nizamghat, which overawed them for a time. This unsatisfactory state of affairs and our apathy towards the offenders continued up to 1893, when one of our Mirri villages was raided and captives carried off. The negotiations for their restitution were unhappily futile; so as the behaviour of the Abors, their insolence and ignoring of Garston's treaty, was affecting the other frontier tribes, notably the Mishmis, a fifth expedition was organized against them under Captain Maxwell, consisting of 400 military police and 100 rifles of the 44th Goorkha Rifles, with 1,500 coolies for transport.

As in former expeditions the direction and control were vested in the Deputy-Commissioner as political authority, who ordered the advance against Bomjour, Dambuk, and Silluk, as the first objectives. The former village was attacked at dawn on 14th January, and taken without opposition. Dambuk was found strongly stockaded, as usual, a mile or so in front of the actual village. The dense forest prevented any turning movements, and as the first efforts of the advanced guard to rush the stockade failed, and the two 7-lb. guns had no effect, a general assault was ordered. The Abors fought well, standing to their defences, and kept up showers of arrows and stones while the attackers were hacking at the *chevaux de frise* of "panjis," which prevented them from reaching the stockade. At last the Abors gave way, but the defences were carried too late in the evening to justify a further advance on the village, which next morning was found deserted. A move was now made against the villages Mimasipu and Silluk. Both were destroyed, opposition being only found at the latter place. The political Agent now learnt that Damroh—a large village, stated to be four marches further into the hills—had also taken their share of the fighting; so an advance against it was decided on. Transport and supply difficulties arose, and a halt was called until 20 days' rations could be collected at Bordak, to which place the force had advanced just below the junction of the Yamne and Dihong Rivers. This was now made the base while sick were returned to Bomjur, the starting point of the expedition. The Deputy-Commissioner, relying on local information as to the improbability of hostile action by the Abors in this neighbourhood, deemed a small guard only at Bordak sufficient. After nearly a month's delay the rations were collected and the force advanced, leaving 17 rifles and 44 coolies

at Bordak—rations were to be sent on by friendly Abor coolies. Dukku, two marches on, was reached without mishap, and next day only 6 miles were made, owing to difficulties on the route, and a reconnoitring party up the Yamne gorge was fired on. The next march (2 miles) were covered, and further difficulties were felt by the Abor coolies deserting. The force was now in straits. They had been far longer on the road than had been anticipated, and no supplies had reached them from the base. An attempt was made with a flying column to reach Damroh, now some 4 miles off, with orders to destroy the place and return the same day. This, however, failed, the march being greatly delayed by having to turn the Abors out of a great stone shoot arranged for up the hillside, and the column returned at two in the afternoon without having reached the objective.

The force now had to turn back, no rations having come out from Bordak. *En route* the Abors opposed the retreat at Silli and Dukku, and Bordak was duly reached, to be found completely gutted. Dead bodies strewed the camp, and the stores were destroyed. It was reported by the one man who escaped the massacre that the enemy had come into camp in the guise of carriers who were expected, and that while loads were being distributed to them they suddenly set upon the small garrison, cutting down all right and left. The Deputy-Commissioner now decided to evacuate the country; but Maxwell persuaded him to stay long enough to punish Padu and Membu, who must have been concerned in the destruction of the camp. Both villages were then burnt with but little opposition, and the column withdrew to Sadiya in the end of March. The objects of this expedition can only be said to have been fairly accomplished and at a loss to us of a considerable number in killed and wounded. The “posa” or annual monetary stipend has been stopped since this expedition. With the exception of one small raid in 1903, this tribe gave no trouble until March, 1911.

THE MISHMIS.

We now come to the Mishmis, who adjoin the Abors on the east, and who merge into the interest at present surrounding their neighbours by reason of a friendly Mission going through their country simultaneously with General Bower's expedition, this being done to prevent the Mishmis joining with the Abors, and for survey purposes. The Mishmis consist of four tribelets, and are, on the whole, a weak race; the Meju and Chulikatta sections being, perhaps, the most warlike. Their country is extremely mountainous and practically unknown, but is supposed to be bounded on the north-east by the Thibetan provinces of Pomed and Zayul; while further east is said to lie the fertile Lama Valley, of which Rima is the principal village.

The general strength of all four is unknown, but they are keen traders and greatly appreciate access to the markets in the plains. The majority of the Mishmis acknowledge their dependence on us, though the Mejus consider themselves allies of Thibet, which feeling dates back to 1836, when the Thibetans certainly assisted them against the Digaru tribe. They also seem to be under the orders of the Khamtis and Singphos, who dwell further south. This *terra incognita* has stimulated several explorers to penetrate the hills without success, their general object being the fertile Lama Valley in South-East Thibet and the district to the north, each called Zyul. With three exceptions none have got through the Mishmi Hills, the first to be partially successful being M. Krick, a French missionary. He got through in 1851, and had a good view of the valley itself, but was not allowed to approach Rimah, the capital. Three years later he, with M. Bourry, again essayed to enter the Lama Valley. This time they experienced some difficulty with the Mishmis, a chief Jingsa blocking their road and obliging a long detour to be made. Further trouble occurred with a Meju chief, Kaisha, who followed the party, and from motives of plunder murdered both as they entered the Valley.

When the news of this outrage eventually reached India, Lord Dalhousie in February, 1855, deputed Lieutenant F. G. Eden to punish the murderers. Eden, taking only 20 picked men of the 1st Assam Light Infantry (now 6th Goorkha Rifles), 40 Khamtis, and a few hillmen as carriers, made one of, if not the, most successful minor expeditions in the annals of our punitive expeditions in Assam, for after eight days of forced marching and great hardships inseparable from rapidity of movement, he reached and surprised Kaisha's village on the Du River, and assaulted and captured it with the aid of a friendly chief—Lumling—who joined in just in time. Kaisha was captured and the greater part of the stolen property was recovered, as well as the Singpho servant of M. Krick. The victorious little party returned safely, and Kaisha was duly hanged at Dibrugarh, but not before he had managed to kill two warders. The success of this expedition was, however, marred by Government's refusal to assist the chief Lumling, who shortly after was set upon by Kaisha's son, who, with the aid of Chulikattas, completely exterminated the chief's family and people. Lumling was a Meju, and this refusal by our Government to aid Lumling has led to a lasting and bitter feeling by that section towards the British.

The only other military expedition against the Mishmis was that in 1899, when, to punish the murder of four people near Sadiya and the carrying off of three people and three guns, a force of 1,200 troops and two mountain guns was sent against them. They left Sadiya on 1st December, 1899, and returned on the 8th February, 1900, having encountered no opposition, which, indeed, was never expected from the

offending Bebejiya section. A small advanced party only reached Hunli in the central valley, which was deserted, and beyond a small amount of survey work and a large expenditure of money it may well be said that nothing was accomplished. A big and unwieldy force, before which the people retire, seldom has such good results in a punitive sense as a small and very mobile column. In 1885 Mr. Needham, (Political Agent at Sadiya) reported he had reached the district of Zayul. He was, however, not allowed near Rimah when he got into its neighbourhood on his return.

THE SINGPHOS AND NAGAS.

The next tribes claiming our interest in Northern Assam are the Singphos and Nagas. The former, who are the actual Kachins of Upper Burma, have their principal home in the Hukong Valley, east of the Patkoi Range, and through which in 1896 a survey was made with a view to making a railway to connect Dibrugarh with Mogoung in Upper Burma. Our first contact with this tribe occurred in the course of the Burmese War, 1825, when Captain Neufville was detached with a force to drive them from the neighbourhood of Dibrugarh. In this he succeeded, and no further trouble occurred till 1835, when the Hukong Valley men again made a determined incursion into Upper Assam, but received a severe defeat at the hands of Captain Charlton with 250 Sepoys at Bisa, which place for many years was held by a British detachment. In 1843 this and the smaller posts of Koogoo and Ningroo were attacked by the Singphos; but as there were British officers at each post, these were able not only to beat off the attacks, but to inflict such losses that the tribe has never given further trouble, and a few years later these posts were given up.

The last and most powerful of the north-eastern tribes are those known as Nagas, inhabiting the hill country from the Singphos to Manipur and North Cachar. They are divided into four big tribal sections—Angami, Sema, Aohs, and Lhotas—and two smaller ones—the Rengmas and Kacchas. Of these, the Angamis are the strongest and most warlike, and have given us most persistent trouble since 1832. Their origin is doubtful, some savants ascribing a Mongolian stock to them, which their well-cut features as a rule do not recall; while other ethnologists think they can trace their origin to the Dyaks of Borneo, who, in some far off age, they say must have trekked north through the Straits, Tenasserim, Southern Burma, and Arakan, until they were brought to a standstill by either the vast wall of the Himalayas or the Mongolian peoples. Certain it is that in matters of counting, in some names for domestic implements, in architecture, and in their head-hunting propensities, the Nagas display some kinship with the Dyak people; while their love for marine shells (which they part with but rarely) seems to point to a bygone home near the sea, whereas

now they are entirely an inland community. It is, perhaps, worthy of note that the tribe of Kukis (Lushais) with similar characteristics are still moving slowly north; while across in Burma the great Kachin tribes have been steadily pressing south, even to our day, ousting the Shans from lands held by them for ages.

The first English officials to come in contact with the Nagas were Captains Jenkins and Pemberton, on duty with the Manipur Durbar, who, in 1832, crossed into the Assam Valley through the Angami Hills under a Manipuri escort, and had to fight the whole way. But attention to these people was not paid by the East India Company until two years later, when a serious raid by them into North Cachar compelled action. Since then up to 1880 the conduct of the Nagas has obliged 15 expeditions to enter their hills. In 1853 a policy of non-interference with these hill tribes was adopted, and all troops were withdrawn from the neighbourhood of the border. It is interesting to note the immediate and natural results of this policy. Official reports of those days show that the jubilant Nagas celebrated the occasion by making 22 serious raids in that year into British territory, *i.e.*, down into the main Assam Valley, where the tea industry was progressing. The unsuitability of a non-interference policy and the urgent representations of the Commissioner resulted four years later in a reversal of this policy and the location of a strong outpost at Samaguting, on the outer fringe of the Naga Hills, where Lieutenant Gregory was also sent as Deputy-Commissioner with powers of punishment. This produced a good effect for a time, and about 1874 survey operations were extended into the hills with disturbing effects. For the northern party under Captain Badgely, R.E., and Lieutenant Holcombe with a strong escort, who went in from Jaipur, near Sibsagor, came to grief at Ninu, where the Nagas attacked the camp with success. Holcombe and 80 men were killed, and Badgely with 50 men wounded; while further south Captain Butler's party walked into an ambush, in which he lost his life. A punitive expedition under Colonel Nutthal, with some of the 44th Sylhet Light Infantry and 42nd Native Infantry, entered the hills and exacted an incomplete amount of retribution. Further trouble led to expeditions in 1876 and 1877, and now Government ordered a further move into the hills, when Kohima was occupied, stockaded, and became the Deputy-Commissioner's headquarters, with a garrison of 200 rifles.

The Nagas, now finding that the existence of this garrison effectually stopped their head-hunting pursuits and entailed payment of tribute, broke out in 1879, killed the Deputy-Commissioner and most of his escort, and the Angami Hills were soon in a blaze. Kohima was besieged for a fortnight by 6,000 Nagas, and only relieved by Colonel Johnstone with 2,000 Manipuris. General Nation assembled rapidly a force of 1,135 men

with 2 mountain guns at Golaghat and moved into the hills, not without considerable opposition at the villages of Sephema and Sachima. From the latter place Nation attacked Khonoma, the Angami stronghold, and after severe fighting in mid November, 1879, captured the place with a loss of 2 British officers killed, 3 wounded, and 44 men killed and wounded. In this assault Captain Ridgeway, 44th Assam Light Infantry, won his V.C. The Nagas withdrew into the higher hills and kept up a guerilla warfare, causing us many casualties until March, 1880, when they gave in, chiefly because they found reinforcements were coming up and feared to be surrounded, but partly owing to Colonel Johnstone's drastic treatment of the large village of Phesima. Since then the tribes have been quiet, as strong outposts have been and are still held throughout the hills. The only trouble that now occurs is occasionally with the savage tribes of the so-called "unadministered territory" lying between our Naga Hills and the Upper Chindwyn Valley, a country unsurveyed and practically unknown as yet.

CAUSES OF OUR FAILURES.

This completes the history of our connection with the wild tribes bordering the Assam Valley, and we can now turn to the two tribes in particular with whom interest has again been aroused, viz., the Abors and Mishmis. We have seen how, between 1848 and 1893, five expeditions were sent against the first-named tribe, and how none were completely successful and most failed utterly. The first two failed owing to irresolution of the leaders; the third was ineffectual, owing to dissensions between the Military Commander and the Deputy-Commissioner; the fourth effected nothing beyond a treaty, which was never respected; while the fifth suffered also somewhat in its arrangements and energy through what one may consider a faulty system, viz., that of dual control of the operations, one which has not produced the best results in the past, and fortunately no longer finds favour. None of these expeditions showed those desirable qualities of resolution and energy of Lieutenant Eden's famous and successful exploit in 1854. What a different tale might have been told, for instance, of Manipur in 1891 had these two qualities been displayed. Perhaps a good example of successful operations in these wild forest-clad hills may be taken from General Penn Symons' action in putting down the disorders in the Chin Hills in 1889-90, when he overran the country with small columns, giving neither himself, his troops, nor the enemy any rest until due punishment had been inflicted and all opposition had ceased.

It must also be said that the various disasters and "regrettable incidents" that have from time to time occurred in the past on this North-East Frontier have been due to neglect of

proper precautions and to unpreparedness. Prominent examples are to be found in White's disaster at Sadiya in 1839, Lowther's in 1858, Holcombe's at Ninu in 1875, Butler's at Pangti in the same year, Damant's at Khonoma in 1879, Manipur in 1891, and others. Of these, Holcombe's is, perhaps, most interesting, as showing the treacherous side of these wild tribes which has to be ever guarded against. He and Badgely, with a strong military escort and train of coolies, had gone some three marches into the hills, had begun their survey work, and had camped in the vicinity of Ninu Village. The next morning early a large party of savages—apparently friendly—entered the camp and approached Holcombe, who was strolling about. The Sepoys were all cooking their food, and only one sentry was posted over the front of the camp, while Badgely was still dressing in his tent. Through an interpreter Holcombe chatted with the head men of the party, one of whom asked to be shown a rifle. The nearest happened to be that in the sentry's hand, which was taken and shown. This was the signal, for the next moment the savages threw off their blankets, under which each had his "dao." Holcombe and the sentry were cut down dead at once, and the enemy rushed through the camp cutting down Sepoys before they could get to their weapons. Badgely was cut at and wounded as he left the tent, but succeeded in collecting a few Sepoys and making a stand whilst rifles were got out. The stand was, however, of short duration, and a retreat had to be made, fortunately well-conducted, or none would have remained alive, for the affair was over in a very short time, and the camp and the vicinity swarmed with the exultant enemy. Badgely with his small party effected a retirement out of their hills with such of the wounded as they could take, and the result of this unhappy trustfulness and lack of precaution cost us, as was previously shown, 1 officer and 80 men killed, 1 officer and 50 men wounded. Butler and Damant both came to grief by approaching villages of doubtful temper with no ordinary precautions. It is generally said that none of these tribes ever fight in the open, or have any heart for anything but night surprises, village defence, or treacherous surprises. This is true as a general rule, but it must not be forgotten that instances have occurred of fighting in the open. Captain Charlton's operations against the Singphos in 1845 included a fight in the open near Bisa; and again in 1851 near Kekrima in the Naga Hills, Captains Vincent and Blake were resolutely attacked on a rolling open plateau a mile from the village defences, the tribe making a great effort against Blake's two guns, and only drawing off with heavy loss, whilst ours was by no means inconsiderable. The late General Macgregor, who had a large experience amongst various of these tribes, used to speak well for their bravery, and cited several instances when he had seen them come into the open country under our fire and carry off their wounded.

The establishment of permanent military posts among these savage tribes is the best means of controlling them and must prove the cheapest in the end, when we see the great expense occurring and recurring of punitive expeditions, the last of which in 1899 (viz., that against the Mishmis adjoining the Abor country) cost $2\frac{1}{2}$ lacs, and in which, as stated before, little or nothing was accomplished beyond a small amount of survey work.

FRONTIER PROBLEMS.

And so this particular area—and a large one—has remained all these years a *terra incognita*, for what lies beyond the outer fringe of hills into which only our troops have penetrated is not known, nor how far off the actual Thibetan border may lie. Fertile lands, it is stated, lie beyond the Abors and Mishmis, to wit provinces of Thibet called Pomed and Zayul, and a country called the Lama Valley, near Rima. The course of the great Brahmaputra some distance from and below Chaksam Ferry is also unknown, though a certain native surveyor did go up many years ago into Thibet, and has left records of a journey down the Sang-po to a point some 35 miles from the Assam border. At least, he states he reached a place called "Mirri Padam," where, ascending a neighbouring hill, he could see "the haze of the Assam plains," and assumes he was that distance from them. He was, however, obliged to return the way he came, and as he was away two and a-half years, during a good deal of which he was in captivity, probably too much reliance on his statements is not advisable.

From questions that have been asked in Parliament concerning Mr. Noel Williamson's presence in the Abor country, it would seem there were doubts as to the need of sending a punitive expedition at all, seeing that he was murdered in a locality where, the questioners state, he had no right to be. People arguing on those lines have no idea of the gross slur it would be on us to have left a massacre like that unnoticed, simply from the outlook of economy and expense, which is really what their objections are aimed at; nor do they realize what is required of a frontier official and his life. He has to be in touch with all tribes in his sphere of jurisdiction, to acquaint himself with all that is going on on either side of the border, and to influence, if possible, the wild peoples in a right direction. For obvious reasons Government lays down rules as to the crossing of borders, and in 1872-73 a regulation was drawn up prescribing the limit of direct administration, which is known as the "Inner Line," viz., a boundary maintained at the discretion of the Lieutenant-Governor, which British subjects of certain classes and external tribesmen are not allowed to cross without a pass. This "Inner Line" shown on maps is not the British frontier: it is merely a line fixed by Government to guide the civil officers as to the extent of their jurisdiction. No

frontier officer could adequately fulfil his duties if he sat year in year out in his headquarter station, so to speak, merely listening to most likely unreliable reports brought in by so-called "friendlies." Would Macabe, Davis, and Needham in Assam, and Elliot, Baber, and others in Burma, have won such credit as border officials if they had not, when opportunity offered, accepted the responsibility for exceeding their routine instructions in order to get more in touch with wild peoples whose customs and country stimulated their keenest interest, giving thereby a considerable amount of information to Government obtainable in no other way?

The great unknown lying beyond the borders of Northern Assam and Upper Burma furnishes a mystery which has provoked the natural interest and curiosity of many, and efforts here and there have been made to acquire information, but the difficulties of these forest-clad regions and the hostility of the tribes have proved a bar to the progress of isolated individuals.

Two attempts have been made to reach Rima, the capital of the fertile Lama Valley, but when close on it on each occasion the officers were turned back. Up to quite recently the only European who had been there was Prince Henri d'Orleans, who journeyed across from Tonkin, and passing through Rima reached India via Sadiya. Last summer, however, the late British Trade Agent at Gyantse was in China, and travelled to India via Bhatang and Rima, reaching Sadiya in July, and doubtless from his pen some interesting information may be forthcoming. We know how active China has been during 1910 and 1911 all along the north-eastern border, as well as in Thibet, though the recent revolution has temporarily put a stop to these activities. It would seem that for some time past the extension of her administrative area westwards has been a fixed principle in the minds of Chinese statesmen, and who shall say the same idea will not be again reverted to under a new and stable Government in a rapidly modernizing China? During the last two years, in her efforts at incorporating Thibet into her dominion, she has been brought into conflict with the peoples inhabiting the districts of Pomed and Zayul, which lie immediately to the north and north-east of the Abor and Mishmi countries, and consequently are in close proximity to our sphere of influence, though how far off and where the borderland of the tribes may lie we have no knowledge. It therefore behoved the recent Abor Expedition to push as far into the hills as possible, and ascertain the general position of affairs. A further interest connected with the expedition was the hoped-for unveiling of the mystery hitherto surrounding the course of the San Po River and its supposed falls, an interest which concerns not only us but geographers of all nations, all eagerly looking forward to the exploration reports of our survey and other parties sent out this winter. As, however, it was not found practicable to carry exploration sufficiently far forward,



to carry exploration sufficiently far forward,

the supposed "falls" were not reached, and the mystery is still unsolved. In fact the whole of this north-eastern borderland from Bhutan to the Siamese side has sprung suddenly into public interest, and its importance now may possibly have a favourable effect on Assam, in causing its roads and communications to be generally improved. The unmetalled and bridgeless condition of most roads in Upper Assam in the event of large and prolonged military operations would prove a considerable difficulty in the moving of troops, &c., for both the Assam-Bengal Railway and steamers to Dibrugarh are decidedly limited in their capacity for transport if heavy calls are made upon them.

Many people argue that there is no danger along this side of India, owing to its difficulties of mountains, forests, and rivers; but they are probably unaware of the fact that China carried out only a little over 100 years ago what has been recorded as "the most remarkable military achievement ever known," viz., when she moved an army of 70,000 men over 2,000 miles of most difficult mountainous country at great altitudes through Thibet into Nepal, defeating the Goorkhas at Tengri Maidan, and crushing them at their capital. What they effected then in setting all difficulties at nought, it is not unreasonable to suppose could be done again. The Burmese also invaded and took Assam early in the last century, the forests and difficulties of the Patkoi Mountains proving not insurmountable to them. Huge stones set up and carved with the Burmese peacock denoting the halting-place of some general and his troops, have been found in the heart of the Naga Hills. Other remotely possible contingencies in connection with Thibet may also be said to be causing attention, but it is China's determination to carry a settled administration up to where foreign countries are met, which forms the newly arisen interest for Upper Assam and Upper Burma; for the intrusion of Chinese into the tribal tracts under our sphere of influence cannot be permitted, and a definite boundary will have to be determined on to obviate future trouble and expense.

VIII.

THE DOUBLE-COMPANY SYSTEM IN THE INDIAN ARMY.

By LIEUT.-COLONEL S. H. CLIMO, D.S.O., 24th Punjabis.

THE object of this article is to examine the question of the double company as to its suitability or otherwise for employment as a tactical unit in our Army, taking into consideration the varying conditions of warfare under which the British Forces in different parts of the Empire may be called on to act, and the fact that the method most suitable to our Army for obtaining a decisive result is to manœuvre on the battlefield while keeping a large reserve in hand.

The subject has been lately the medium of considerable discussion at home, but such discussion has of necessity been purely theoretical, owing to lack of actual experience of the double-company system. It appears desirable, therefore, that an officer who has had actual experience of the system during the period in which it has been in existence in the Indian Army, should give his views and experience of the tactical employment of the double company.

Before analyzing the subject further it will not be out of place to describe the events leading up to the introduction of the double-company system in the Indian Army, and to discover why more prominence has so far not been accorded to the double company from a tactical point of view.

In July, 1900, the reorganization of the Indian Army took place, the "wing" system giving way to the present one. It might be justifiable to infer that, with close on 12 years' experience of the large company, officers of the Indian Army would be unanimous as regards the advantages or disadvantages of its tactical employment. That this is by no means the case may be accepted and not without sufficient reasons.

To explain the reasons it will be necessary to go back to the period just anterior to the introduction of the double-company system. For some years previous to 1900 the opinion had been steadily growing that the training and administration of a half-battalion by one individual was little short of superhuman. The

demands made on their time by 456 of all ranks will still be fresh in the memories of those who enjoyed the title of wing commanders. To demonstrate the measure of this task it will be sufficient—and perhaps not without interest—to recapitulate some of the multifarious duties of this fourfold centurion.

The regulations demanded that not a single round of the regular course was to be fired by upwards of 400 aspirants to marksmanship except in his presence. Field training was carried out by companies to each of which 21 working days and a formidable return were allotted; the completion of the latter with its mystical signs “P.” or “N.P.” was the crowning point of each working day. The engrossing occupation of the hot weather was the fitting of new full-dress uniform; and lest the charge of monotony should be laid at the door of this duty, tunics and pantaloons were issued in alternate years.

Apart from the above, wing commanders attended to the normal office drill and instruction routine, in themselves all sufficient for one man given he was a quick and, let it be added, a conscientious worker.

On the top of everything came the lessons of the South African War. A somewhat strong light was brought to bear on the Army officer and his methods of training, with the result that he was required to improve himself out of recognition; and as regards the rank and file, it was insisted that a higher standard of training for war was to be afforded them.

These then were the factors that led up to the introduction of the double company, and it will be noted that they were in no sense tactical ones. The result has been that very few battalions have considered the tactical employment of double companies, nor have they always attempted to keep them intact in close order drill or when adopting preliminary formations for battle. In some units the opposite has been the case. The desirability of keeping the double company together has been recognized, and with this object in view improvisations have been made in the drill portion of infantry training to obviate the splitting up of the unit when deployments or echelons from column are carried out, and when lines of company columns are ordered.

It is open to doubt whether the question has been seriously considered in the Indian Army, otherwise we should have heard and read much more of a subject which, up to date, no officer of the Indian Army has ventilated in the Press. It follows, therefore, that the writer has not a wide field to exploit. It will be necessary to confine oneself to personal and solitary endeavours to employ the double company as a tactical unit, which so far have been of the most elementary description, and to discuss the question in connection with the principles affecting the handling of infantry in battle.

Field Service Regulations, Part I, and Infantry Training, 1911, suggest many points for discussion. The writer will endeavour to analyse these shortly. At the present state of the inquiry it is not the intention to be axiomatic, the desire is rather to offer a few points as food for reflection.

In the following extracts from the training manuals the point at issue is whether the large or the small company is the more likely to attain the end in view :—

- (i) The dissemination of information and the issue of orders is complicated in direct ratio to the numbers amongst whom matter has to be circulated. The greater the number of subordinates in whom reliance has to be placed for the logical comprehension of information and for the intelligent execution of orders, the more the chances of mistakes and misunderstandings are multiplied. Any organization, therefore, which tends to minimize these chances must be advantageous and worthy of mature consideration.
- (ii) The underlying principle of the distribution of infantry in war is depth. In attack the ideal conception of handling a company is realized when the commander in rear, feeling the pulse of the fight and of his men in front, exercises control by the use of his supports. The stronger these supports are, the longer is the unit commander able to sway the course of the fight and to retain his influence over his unit.
- (iii) "In attack the development of superiority of fire can alone make a decisive blow possible. To gain this superiority it is necessary to build up a firing line in good positions within close rifle range of the enemy. This is attained by reinforcing the firing line from the supports and the reserves. Apart from artillery fire this forward movement of supports, &c., can only be effected when covered by the fire of those in front and of bodies of infantry in rear." It is submitted that the commander of a large company, as compared with that of a small one, is more likely to attain this superiority. The susceptibility of the double company to greater depth renders it capable of more sustained efforts. This should lead to a less spasmodic and intermittent progress than that of a small company, and should, therefore, offer a more general chance of success.
- (iv) "All leaders must endeavour to apply at all stages of the fight the principle of mutual support." The intention and desire to co-operate, however strong among commanders of adjacent units, may not be realized so fully as would be the case were the numbers of commanders less. Situations can be dealt with more expeditiously and thoroughly when

the direction of affairs is in the hands of one individual as opposed to two. Before leaving the subject of combination and mutual support, which are parented by *esprit de corps* and sound training, it is submitted that the double company fosters the right spirit, makes all ranks think and act on broader lines, and is more readily welded with its co-partners into the homogenous whole—the battalion.

- (v) “The advance of the firing line must be characterized by the determination to press forward at all costs.” The driving power of the large company should afford it greater ability to wear down the resistance of the enemy. The determination referred to above cannot but be intensified by a feeling of increased strength, which the stronger company should impart.
- (vi) “The defence will usually endeavour to compel the attack to employ his reserves earlier than he intended.” Once the supports of a firing line are exhausted the company commander can no longer influence the fight in the fire stages, except by the utilization of varying volumes of fire as a reserve of power or by calling on his battalion commander for reinforcements from the reserve. It is suggested that, as a psychological probability, the later this demand on the reserve is made the brighter will the situation appear to the rank and file, and the longer will the strain on their *moral* be delayed. It seems to follow, therefore, that the greater depth of the large company will postpone the call on the reserve for assistance, will lengthen out the period of control of the company commander, and generally will tend to a smooth and unrelenting progress of the attack.
- (vii) “In defence the natural or artificial strength of a position cannot compensate for loss of initiative.” It is not unjustifiable to arrive at the conclusion that the employment of small companies tends to foster an inclination to remain on the defensive, and conversely it is logical to assume that the large company should be imbued with a stronger inclination for and possess a greater power of offence.
- (viii) “In the encounter battle a commander should remember in coming to a decision that the enemy is probably in an equal state of uncertainty, that when forces are in close contact it is usually difficult to avoid an engagement, and that the advantages of the initiative and of the offensive should only be abandoned for weighty reasons.” These are considerations which force themselves in no uncertain manner on commanders of advanced guards more especially. The question arises, does the large company hold the advantage over the smaller one in such matters as initiative,

ability to push back the enemy's advanced troops, and to gain ground for the deployment of the main body? Whatever the answer, it will apply with equal, if not greater, force to a collection of units, than it does to a single unit.

- (ix) Reference has just been made to the encounter battle, of the nature of which advanced guard engagements usually are. Field Service Regulations, Part I, points out: "When an encounter is anticipated, it is advisable that commanders of columns should be well forward." If by any chance a commander is not in his right place, is it to be supposed that the commanders of small units will serve him as efficiently as those of larger units? Should the column commander be on the spot, which of these commanders is the better able to obtain early information for him as regards the enemy and the ground, and to assume the most suitable dispositions to meet such situations as may occur?
- (x) "The outpost company will make arrangements for a protracted resistance by selecting a good defensive position . . . which should support and be supported by the companies on either hand." More often than not, owing to want of time, outpost company commanders cannot wait on each other: the result is that ground is dealt with inefficiently. Even if there is leisure for adjacent commanders to adjust their distribution mutually, the delay so caused is undesirable as affecting the rest of the troops who have an arduous task in prospect. A large company has fewer connections to make, and can obviously cover more frontage. As this frontage can be dealt with by one commander, it is submitted the occupation of the outpost position is facilitated and expedited thereby, and that the ground will be supervised and defended more effectively.
- (xi) Field Service Regulations, Part I, Section 72, describes the action of a rearguard to a retreating force. This section is pregnant with points which affect the choice between large and small companies. In retirements a commander soon loses control over his troops, and has to rely on his subordinates. It is manifest that this trust will be extended more readily to four experienced subordinates than to double the number, among whom there may be some lacking in experience and grasp of this difficult operation. Of a rearguard much is expected, at one time making as great a display of force as possible, at another retiring in successive portions under cover of each other's fire, yet again resolutely defending a rearguard position to gain time for their main body. All these missions should be dealt with more effectively by large companies directed by a single commander. The

inability to do so is discussed more fully under the heading of "Frontier Warfare."

- (xii) As regards the supply of ammunition in the field, it is suggested, in the case of four large companies, that, in the first instance, one cart be allotted to each company, in addition to the pack animals. At the point where preparatory attack formations are assumed the cart ammunition would be distributed, which would bring the amount carried by the soldier up to 230 rounds approximately. This need not be considered excessive in the light of the Manchurian War, where the Japanese soldier discovered for himself that, once embarked on an attack, he was unlikely to get any further supply of ammunition. In some instances the men moved from the position of assembly with as many as 500 rounds on the person.

As regards the handling of the pack animals they would accompany the rearmost portion of each double company of units in the firing line. A further issue of ammunition would be made to the support for distribution to the firing line.

As each load becomes exhausted the animal would be taken back to the refilled carts—now a regimental reserve—and load up afresh.

Thenceforward it would be the duty of the N.C.O. in charge of each batch of animals to call the attention of all units moving up to the front line with a view to issuing more ammunition to them for the use of the firing line. By this means each double company would establish ammunition reserves within reasonable distance of their firing line and with considerable likelihood of making good deficiencies.

The training manuals contain many more points which can be applied to one or other organization. Whatever the conclusion arrived at, it must apply with equal force to a collection of units, as it does to the single unit itself.

For the employment of such an organization as large companies there should be little anxiety as to its suitability for the circumstances of our Army, nor should any tendency to depart from the spirit of our tactical principles result therefrom.

The employment of the double company in warfare on the North-West and North-East Frontiers of India will now be considered.

With few modifications all that has been written in the foregoing pages is applicable to the class of operations now about to be dealt with.

Before going further it will be useful to recapitulate the occasions on which the Indian Army has been engaged in active operations

since its organization into double companies. They are as follows :—

- (1) China, 1900–01.
- (2) Tibet, 1904.
- (3) Zakka Khal Expedition, 1908.
- (4) Mohmand Field Force, 1908.
- (5) Abor Expedition, 1911–12.

China found the Indian Army in its transition stage. No attempt was made to work in the field, except by single companies.

In Tibet the writer is unable to write from personal experience as regards the actual fighting. With reference to the subject of this article, a point of interest was that all movements through the Teesta and Chumbi Valleys and onwards to Gyantse were carried out by double companies. This was due mainly to the size of the camping-grounds and to the fact that troops moving up in support were without transport, and utilized the staging transport established at each post for convoy duty. It is justifiable, however, to assume that tactical influences were at work, which determined this unit as being of sufficient strength to move through the country with security.

During the operations of the Mohmand Field Force in 1908, many points were brought to notice, which indicated the double company as peculiarly suitable to warfare on the Indian Frontier.

Some of the more important of these are as follows :—

- (i) In protection of the line of march the heights are piqueted either by the advanced guard or by a special body of infantry sent on ahead before the main body starts. The extent of road, which can be secured by a double company, makes a suitable section for supervision by one commander, mutual support and co-operation are better ensured, and the risk of detachments being isolated is reduced.
- (ii) In bivouacs and camps battalions are called on to provide certain details which reduce the number of companies available for the defence of the perimeter. For example, one company at least is required to supply protective piquets, a second company is detailed as regimental reserve, while a third company may be required as Brigade or General Reserve. In such circumstances five companies will be available to hold the defensive perimeter. To prevent continual repetition in orders and redistribution of companies, the following plan was adopted, and was rendered possible by the adaptability of the double company. The extent of perimeter allotted to a battalion was divided into four equal parts, each of which was always occupied by the same double company. No double company was called upon to furnish both its companies for extraneous duties. The object was to ensure one company of each double

company being available to occupy its portion of the perimeter. Companies thus situated were distributed over the entire frontage allotted to the double company instead of retaining half their number in support, as was the case with those double companies which were not furnishing extraneous duties. The advantages of this plan were twofold, for in addition to obviating a redistribution of the perimeter at any time, the company detailed to furnish night piquets in protection of the camp having no entrenchments to execute on arrival, could rest and cook without hindrance. In like manner the leading company of the advanced guard, the first to go out in the morning and one of the last to get into camp, was detailed as regimental reserve, and had little or no digging to carry out on arriving late.

The company detailed as general reserve, having no work to carry out on the perimeter, was utilized to assist the protective piquets in preparing sangars. It was found that these could not be built satisfactorily without help from some form of fatigue. It should be added that the self-contained nature of the double company precluded the necessity of harassing the adjutant quartermaster and transport officer with instructions regarding the requirements of the piquet company before the march the next morning. The sister company automatically arranged for their water, transport, &c.

- (iii) In attack the double company justified its existence under all conditions of terrain, especially on parallel spurs with a constant slope, and working over a series of spurs at right angles to the line of advance. The habit of working for each other ingrained in peace time was exemplified admirably on such occasions as these. It is doubtful whether commanders of separate units could have carried through these advances with the same degree of mutual support and expedition.
- (iv) In retirements the battalion of four double companies spontaneously broke itself up into four parties—one holding a position nearest the enemy, one posted in support behind the former, a third moving to a position still further back, while the fourth took up a situation centrally under the command of the battalion commander. Each unit in itself was strong to resist, and had not that feeling of isolation or absence of combination, which might be apt to characterize the action of small companies, whether acting singly or in pairs.

The influence of close country on tactics will be considered both as regards civilized and savage warfare. The same principles are applicable to both forms of fighting, with certain modifications.

As regards civilized warfare, the last two wars of importance—the South African and Manchurian—were conducted in countries singularly devoid of woods and forests. It is necessary to go back to the year 1870 in order to obtain suitable examples. The German infantry displayed a marked aptitude for wood fighting. Their superiority over the French in this respect may be attributed to the large companies employed by them.

Assuming this to be the case, it will be desirable to seek for the causes contributing to this superiority. Infantry Training, 1911, Section 151, &c., furnishes considerations which speak in favour of the large company. Some of these are as follows:—

- (i) "The possibilities of employing artillery fire are restricted." And again: "The field of view and of fire (rifle) is limited." In the absence of support from artillery fire infantry must rely on their own efforts. These will take the form of employing at critical moments all the rifle power available and charges with the bayonet. It is obvious that the larger company can inflict the harder knocks. The harder and more sustained these knocks are, the greater is the chance of success.
- (ii) "An important characteristic of close country is loss of higher control which calls for more initiative on the part of subordinates in order to ensure combination." This point has been referred to on a previous page. Here let it be added that the strength of their companies may have had much to do with the readiness to act on their own initiative which characterized the German officers.
- (iii) "Troops in close country are very sensitive as to their flanks." Two small companies acting separately offer four vulnerable points, whereas by combining these into one company this vulnerability is reduced by half.
- (iv) "It is rarely possible in enclosed country to keep the objective in constant view. Special care is therefore necessary if the direction of the attack is to be preserved." The difficulty of maintaining direction will be in direct ratio to the number of units, on whom the necessity of keeping touch devolves.
- (v) "It will be often advisable to penetrate the attacker's screen by means of local counter-attacks, &c." The whole of this paragraph suggests the desirability of portions of the firing line and local reserves being under command of the same individual. It is almost certain that in close country the troops nearest the attackers will be sensitive, consequently their inclination will be to advance out of their positions or retire from them before any real necessity arises. The commanders of companies in the firing line may not

have time to call up the local reserves, or their demands may be ignored. On the other hand, if the unit under their orders is of sufficient strength to furnish both firing line and local reserve, it is in their power to deal with critical situations by the delivery of counter-attacks. By this means these can be made without reference and delay, and may go far to relieve the moral and mental tension of the firing line in a crisis.

- (vi) "In wood fighting it is important that all commanders should keep small reserves in hand as long as possible, and should strike at the enemy whenever he exposes a flank." This paragraph emphasizes the preceding one—the small company cannot effect much in this direction.

Turning from civilized to savage warfare in close country, disciplined troops labour under the following drawbacks in the latter :—

- (i) Limitation of view, which tends to equalize armament.
- (ii) Obstacles to movement which break up formations and tend to relax superior control.

These two drawbacks are open to remedy by keeping men in hand as far as possible and within limits by employing strong rather than weak units.

Formations suitable to bush country also affect the question of the size of units. These depend on the nature of the country operated in, such as bamboo jungle and reed swamp traversed by a single path, along which men can move in single file only ; and tracts of low scrub, passable to troops at any point.

The latter will be more commonly met, and will be treated of herein. It is probable that an organization of small or large companies is equally suitable to the former.

In movements through tracts of low scrub, such as are met in Somaliland, square or echelon formations are usually adopted. The square formation approximates very closely to the system on which troops are placed in camp or bivouac.

It is almost superfluous to state that the most vulnerable points of a camp or square are the corners. On this account it is laid down that in a bivouac or camp flanks of units should not meet at salients. It is submitted that the distribution of units on the perimeter will be facilitated, and the efficient defence of salients will be better ensured by the employment of units such as double companies.

At first sight it might appear that the arguments adduced in favour of the large company could be met in war by detailing two companies to deal with any given situation. It is contended, however, that, war being the harvest of peace, it is certain that without training in peace time the same degree of combination, co-operation, and expedition in crises cannot be expected.

Before entering into the question of peace training, so essential

as a preparation for war, it will be necessary to make some suggestions as to the establishments of commissioned officers in a four-company battalion.

If the introduction of the large company foreshadowed any material reduction in the proportion of commissioned to other ranks, it would, indeed, be a strong argument against the change.

In the Manchurian War the casualties among the Japanese officers will serve as a guide to the future. At the battle of Mukden 37 per cent. of the officers engaged were wounded or killed—that is to say, practically two out of every five officers.

The establishment of commissioned officers with the proposed battalion might be as follows :—

Commanding officer	..	..	..	..	..	..	1
Second in command	..	..	..	..	..	..	1
Adjutant	..	..	..	..	..	..	1
Quartermaster	..	..	..	..	..	..	1
Transport officer	..	..	..	..	..	..	1
Signalling officer	..	..	..	..	..	..	1
Scout officer	..	..	..	..	..	..	1
Machine-gun section officer	..	..	..	..	..	..	1
Company (or double-company commanders)	..	..	..	..	..	..	4
Section commanders	..	..	..	..	..	..	16
							—
Total officers							28

The organization of the company might be as follows :—

Field officer (in command of company)	..	..	..	1
Captains and subalterns (commanding sections)	..	..	..	4
Rank and file (4 sections of 60 rifles each)	..	..	..	240

The peace training of the company would be arranged on the following system :—

The company commander would be responsible to the battalion commander that the system of training was uniform and in accordance with the principles laid down for the army. He would pay particular attention to the professional efficiency of his four section commanders. To effect this he would set schemes and carry out tactical tours at frequent intervals. He would outline the methods of training he wished adopted, and by periodical inspection he would satisfy himself that each section was in every particular trained for war.

So as to allow a free hand to his section commanders he would supervise—but not actually and continually superintend—their duties, which shortly would be as follows :—

Close order drill.

Regimental history, Standing Orders.

Movements in extended order.

Musketry instruction and superintendence of the annual course of musketry.

Fire tactics and application of musketry in the field.

Infantry action in battle.

Principles of frontier warfare and bush fighting.

Training of the section in the field.

Training of scouts.

Training in night operations.

Instruction in bayonet fighting.

Physical training.

Outdoor sports and games.

The capabilities of the section in these particulars would be the standard whereby its commander would be judged, by no means an easy task but a labour of love, even to a man not in his first youth, if success in war is worth working for.

As regards peace training, three of the most pressing considerations in favour of four, as opposed to eight, commanders are as follows :— Firstly, the command of companies would never devolve on young and inexperienced officers, whose ability to instruct cannot be of so high a standard as that of older officers. And further, the constant changes in commanders of companies, as is the case in the eight-company battalion, would be largely reduced. The second consideration is that divergencies in the system of training are in numerical proportion to the number of instructors through whom instruction is imparted to the men. This latitude is further complicated by the constant change of instructors, who perplex those they are supposed to instruct, and hinder continuity of thought and training. Thirdly, intelligent co-operation and mutual reliance cannot exist in a body of troops unless every one has confidence in his own individual action. To ensure the existence of such confidence in a battalion it is essential that all should teach, think, and act alike. If instruction and interpretations are varied to suit personal tastes, the instructed are in a state of bewilderment and uncertainty, consequently the individual can never be sure he is acting as he is expected to act, nor has he much reliance in himself or in others.

The existence of four instead of eight instructors should go far to ensure uniformity of instruction, and by keeping officiating appointments in command of the company within the company itself continuity of training should result.

In conclusion, it is interesting to note that instructions have been issued for the training of the Aldershot troops under the double-company system during the present training season. It is to be hoped the experiment will meet with more success than a similar attempt in England in 1908. It is stated that the only officers who then pronounced the system a success were the double-company commanders. It has been suggested that the fact of chargers being allowed to the double-company commanders was the reason for this pronouncement.

IX.

THE MILITARY FUNCTIONS OF AN ARMY MEDICAL SERVICE.¹

By LIEUT.-COLONEL M. W. RUSSELL, R.A.M.C., D.A.D. of Medical Services, Eastern Command.

AS Staff Officers it is of great moment that you should have a just appreciation of the relations of the various services in the Army to the Army as a whole, as well as of the relations of these services to each other. My object is to explain to you these relations in so far as they affect the medical service. My remarks are of an introductory nature, and will deal solely with the military aspect of the question.

If the man in the street were asked to say what were the functions of the medical service of an army, he would probably reply: "To take care of the sick and wounded." The rôle is an honourable and much prized one, and one which the medical officer is the least likely to belittle. He regards it, perhaps, as one softening trait in a grim business, one attempt to extenuate and mitigate the violence which is the very essence of war. But he knows quite well that the reply is a very partial and incomplete one, and while glad and proud of his humanitarian functions, he is fully aware that they are no justification for the existence of his service as a military body, and that had he no other essential part to play he might, with a good conscience, assent to his own abolition and to the handing over of his duties to the Red Cross or some similar organization.

War is a stern business, involving, perhaps, the very existence of a nation. The issues are so tremendous that nothing in a military organization which places these issues in doubt or jeopardy can be justified. A general entrusted with an army must at all costs prevail against his enemy; he must be prepared to sacrifice everything for the attainment of his object; the lives of his troops, the sufferings of his men are the price he must pay for the success which is demanded of him. If he allowed any humanitarian considerations to stand between him and his mission he would be held to have failed in the trust committed to him. Everything therefore must be subordinated

¹ A lecture given at the Staff College, February 15th, 1912.

to the one end ; every element in his army must help towards that end. If it does not so help, it must be cast away.

If the medical service can render active military assistance in deciding the course of a battle or campaign, it has so far justified its existence. Without such value it has no real *raison d'être* in military organization.

That it possesses this military value, and that this value is recognized to be of increasing importance, is demonstrated by the growing attention which is being paid to it in all armies. What then are the influences of an army medical service on the efficiency of an army regarded as a fighting engine ?

They are of two kinds—(1) Indirect, and (2) direct. Of the indirect two stand out prominently : (1) The political influence on the nation at large ; and (2) The moral influence on the fighting troops.

The work of a general commanding in the field is in direct subordinate relation to policy—the Government dictates the object and scope of his work, and criticizes his performance. The Government in its turn is answerable to public opinion. In war time the public is always anxious, generally excited, and ready to vent its feelings if things go wrong. Though in ordinary times the people do not show any very marked interest in the army, when war occurs things are different, and the country becomes keenly concerned for its soldiers. It realizes that it has sent them out to lose life and limb in its service, to suffer great hardships and privations, and it is determined that these hardships shall be minimized, so far as the expenditure of money and efficient organization will permit. Money is lavishly given at the time, and the organization concerned is narrowly scrutinized. If shortcomings are detected the public grows restive, murmurs are heard, which quickly grow into a clamour. Pressure is brought to bear on the Government, and is by them passed on to the general when the latter, in the midst of delicate military operations which should have his whole attention, is beset with inquiries, overwhelmed with correspondence, and possibly required to appear before a Commission to give an account of matters of which he can have only an indirect knowledge. His energies are diverted from their proper sphere to allay a storm of popular indignation, which should never have been given occasion to arise.

Our military history teems with examples of this sort, all traceable to the initial non-efficient organization of the medical service for the task it was set to do.

One may cite the outcry in England after Talavera, which caused so much annoyance to Wellington in the Peninsula ; the public and Parliamentary recriminations over the unfortunate Walcheren expedition ; and the popular excitement over the breakdown in the Crimea. Biographical works dealing with that period, such as The

Panmure Papers, The Life of the Duke of Newcastle, The Life of Lord Herbert of Lea, give numerous instances of ministers writing peremptory letters of complaint on the medical situation to general officers commanding, the latter already harassed almost beyond endurance by the military difficulties with which they had to deal. Reports without end were called for, and a Commission was sent out to investigate on the spot the condition of affairs. As a result of their inquiries the medical imbroglio was put straight; but meanwhile, military matters had sadly suffered from the interruption, and the public confidence had been disturbed.

In 1882 in the Egyptian war we had a similar experience, but this time the war being a short one the Commission was mercifully reserved until its close.

The repetition of the same sequence of events in the South African war is too recent to need more than mention.

We cannot deprecate such interferences of the public when cause is shown. The proper care of the sick and wounded is a raw spot on the public conscience; it is easily irritated and inflamed, and then with difficulty soothed. The lesson is plain. If generals are to enjoy the immunity from disturbance which the exacting nature of their task demands, one particular which cannot be overlooked is the efficiency of their medical service. Do not misunderstand me. Generals are just as solicitous for the welfare of their sick and wounded as the public, possibly more so, but they have to do the best with the means provided. It may, however, perhaps not be too much to say that, unless they have an accurate appreciation of the complexity and the severity of the task which the medical service has to perform in war, they may fail to demand, and to insist on having, means adequate to the performance. In this way alone the study of military medical organization will repay an officer when he comes to assume the higher responsibilities. Knowledge and foresight may spare him one of the most trying experiences it can fall to the lot of a commanding general to undergo. There is another way in which such study may be of great profit. The medical service must subserve the military purpose. Who so capable of making suggestions advantageous to both as he who has studied the two?

May we take it that the political influence of the medical service is granted; that such influence, if the service is efficient, is helpful to the general, and through him to the troops?

That an efficient medical service has a powerful influence on the *moral* of an army cannot be gainsaid. The higher we ascend in the scale of civilization the greater the value the fighting man places on his life, the more exacting he becomes that he is spared all unnecessary risks, and that adequate measures are taken to care for him, and to give him the best means of recovery should he be stricken. Men will now perform just as great deeds for an idea as

in the past. In an emergency there is nothing they will not do if properly inspired and led; but the soldier is proud of himself and his calling, and sets a store on himself. There are certain things which he considers his due, and one of these is proper medical attendance. He will not give of his best unless he feels that he is being well done by. Moreover, the absence of proper medical arrangements has a most depressing effect on an army, whilst its presence is equally stimulating.

The horrors of a soldier's life without proper medical care are difficult to conceive. Let us see what they were.

Ambrose Paré was one of the greatest military surgeons France has ever produced. He may be rightfully called the father of military surgery. Born in 1510, he lived until 1590. His first military service was in 1536 in the campaign of Turin. In a description of the conditions after a battle, he mentions that he went into a stable where some wounded men were sheltered. He writes: "As I was looking at them in pity there came an old soldier, who asked me if there was any way to cure them. I said, no. And then he went up to them and cut their throats, gently and without malice. And when I upbraided him he answered and prayed God, when he should be in such a plight, some one would do the same for him, that he should not linger in misery."

I leave you to imagine the influence of such a condition of affairs in the present day on recruiting and desertion returns. Further, would it encourage men to take undue risks of being wounded? Paré was unusually acute and assiduous in the study of his profession, and quickly rose to a very prominent position, being made surgeon to the King. In 1552 the city of Metz was being besieged by the Emperor, and was reduced to great straits. The fortitude of the garrison was giving way. In his extremity the Duke of Guise, commanding the defence, begged of the King (Henry II) to send them Paré. The King sent for Paré, gave him money and stores, and bribed an Italian captain to assist him in passing into the beleaguered city. After many dangers Paré succeeded in entering Metz. He had by this time been connected with the army for some 16 years, and was well known to the soldiers, prince and peasant alike.

On the day after his arrival the Duke of Guise presented him dramatically on the ramparts. He was hailed by all with enthusiasm, the soldiers delightedly shouting, "We shall not die even though wounded, for Paré is amongst us."

His presence gave new vigour to the defence by putting fresh heart into the men and thereby contributed materially to the saving of the city.

The psychology of the soldier in war is a fascinating study. Writers, such as Colonel Henderson, Captain Fritz Hoenig, and others, have shown us how many hidden springs there are which animate

the man; how slight a margin there is in many a man between courage and fear; and how the soldier's resolution must be reinforced by every appeal possible to his self-respect, his patriotism, his pride in his corps and calling, and last but not least, his self-interest. He must be assured that, as great sacrifices are demanded of him, so nothing will be left undone to mitigate the sufferings he will have to encounter, and to save the life which he is asked to expose. Then, and then only, can he be called upon with confidence for that supreme self-sacrifice so often necessary for the winning of battles.

A French writer (Dr. Jean Lemieux), commenting on their Madagascar sanitary *débâcle*, says: "Le soldat sait mourir pour son pays, il est habitué à l'idée d'être frappé par une balle ennemie. Par contre l'esprit de sacrifice n'est pas suffisamment développé pour lui permettre de supporter des souffrances qu'il juge inutiles. Il rapporte à ses chefs la cause de ses misères et la démoralisation en est la conséquence."

Let us now turn to the more direct means by which an efficient medical service helps an army in the field.

First and foremost may be placed the prevention of loss by disablement.

The wastage of an army in the field amounts to about 80 per cent. of its strength in the course of a twelvemonth; some place it as high as 90 per cent. Such a loss is appalling to contemplate.

Deaths from wounds form a proportion of what may be regarded as unavoidable loss, dependent, of course, on the severity of the actual fighting, but always accounting for only a small fraction of the total. Disablement from wounds is responsible for a larger number. The above two categories taken together do not make up half the total, and have rarely amounted to one-quarter.

Of the men disabled by wounds, a large proportion are only temporarily lost, given a properly organized and equipped medical service. Thus, of the wounded sent back in South Africa of Lord Methuen's division in the advance from the Orange River, up to and including Magersfontein, 60 per cent. had returned to the ranks in a month. Oberstabsarzt F. Schaefer, a German observer with the Russian Army in Manchuria, in an article in the *Deutsche Militär-ärztliche Zeitschrift*, states: "We found about four months after the battle of Mukden that of about 30,000 wounded of three army corps, almost one-half (45 per cent.) were again in service at the front. In certain smaller organizations the percentage of those able to resume duty was still higher, reaching 56 per cent. in a rifle division, and 66 per cent. in a Cossack division. In some infantry regiments over 500 men who had been wounded and had recovered, stepped out for our examination."

It must be remembered that this was in the later stages of the war, when the Russians had learned in the hard school of experience and

had brought their hospitals up to a high pitch of efficiency. The army reaped its reward in the enormous numbers who were able to rejoin the battle line.

We had a similar experience in the later stages of the Peninsular War, when, under the admirable administration of the medical service by Sir James McGrigor, Wellington's Principal Medical Officer, men who would earlier have been irretrievably lost streamed back from the hospitals to the colours in numbers which astonished and delighted the General, enabling him to give battle when, without this increase to his force, he might have shrunk from doing so.

It is not necessary to emphasize the military value of the medical service in this respect ; it stands self-evident.

But the main wastage of an army is not from killed and wounded. Disease is by far the most malignant factor. Armies in which the loss by bullets has been negligible have been destroyed by it.

For examples in our own history Walcheren and the first Ashanti expedition (1864) may be cited. The West Indies furnish other examples. In the French expedition to Madagascar in 1896, of 12,000 Europeans sent to Majunga, in four months 3,000 died, 6,000 had to be invalided, whilst the remainder were so weakened as to be barely able to carry their rifles. The army was absolutely broken as a fighting force, and only the entire lack of military resistance saved it from destruction.

These are extreme examples, but they are only worse in degree than the losses suffered from disease in other campaigns. Think of the 21,000 cases of enteric fever in the American Volunteer camps during the Cuban War. Think of our losses in the first half of the Crimean War, which paralyzed military effort ; and of the equally deplorable rate of sickness amongst the French in the later period, which is by many thought to have been the main cause of their bringing the campaign to its abortive close.

An efficient medical service can change all this, can prevent the great bulk of these losses, can save these men from rotting of fever and dysentery and keep them strong and vigorous, fit instruments for the execution of the general's designs. This is direct military help. How is this end to be attained ?

If an amateur commander, ignorant of the precautions enjoined by military science, took a force into an enemy's country and had that force destroyed, you would say that he had met with his deserts, that he should have been properly instructed before embarking on such an enterprise. Ignorance would not be held a valid excuse.

Have we not been doing much the same in a different but, perhaps, more deadly field ?

All these enormous losses from disease are in great part due to avoidable violations of known hygienic laws. The laws are simple ; it is their application which is difficult. The difficulty is not insuperable,

nor is its solution incompatible with military exigencies. But the solution entails knowledge and some trouble. The first essential is instruction. The laws must be widely inculcated, knowledge must leaven the mass. Then we shall have understanding, co-operation will follow, and under expert guidance the common effort will produce results such as a few years ago we had hardly dreamed of.

It is not open to doubt. You have only to look at the figures of the last few years since the higher instruction of the experts at our College has proceeded hand in hand with the instruction of the soldier and his officer.

Let me quote from the speech of a responsible Minister in the discussion of the Army Estimates in the House of Commons three years ago: "As to the question of disease, within a decade the effective strength of the Army, as indicated by the fall in the constantly sick rates, had been raised by 5,700 men, and the wasting through deaths and invaliding had been reduced by 2,900 men per annum, or at the rate of a division of troops for each decennial period. Within four years these changes had led to a reduction of hospital beds at home stations by over 2,200; with a similar reduction, perhaps greater, in hospital accommodation required in India. In the United Kingdom the average of deaths during the 10 years 1889-98 was 4·32. In 1908 the average per 1,000 was 2·50, a reduction of very nearly one-half on the average of the whole 10 years. The average number of men continually in hospitals during these 10 years was 41·14 per 1,000. In 1908 it had fallen to 23·94. In India during the same period the death-rate per 1,000 was 16·43. Last year it was 9·27. The average of the constantly sick for the 10 years was 89·61, while last year it was 45·81. These are very remarkable figures."

They are very remarkable, but they have been bettered since.

In the report on the health of the Army in the United Kingdom for 1909 the ratios per 1,000 of strength for that year are:—

Admissions	..	378·4, a decrease of 50 on the preceding year.
Deaths ..	..	2·92, an increase of ·4 on the preceding year.
Invalids..	..	10·51, a decrease of 2·03 on the preceding year.
Constantly sick	..	21·72, a decrease of 2·22 on the preceding year.

In India the ratios are:—

Admissions	..	716·9, a decrease of 119·3 on the preceding year.
Deaths ..	..	6·37, a decrease of 2·90 on the preceding year.

Invalids sent home 9·06, a decrease of 6·61 on the preceding year.

Constantly sick .. 40·26, a decrease of 5·55 on the preceding year.

The figures for the whole Army at home and abroad show a diminution in 1909 over 1908 over all the headings of admissions, deaths, invalids, and constantly sick. Improvement is, therefore, still progressive.

These are, of course, peace figures, but they cannot fail to react on those of war.

In 1887 an authoritative work on military hygiene laid down the proper provision of hospital beds for an army in the field as 25 per cent. of the strength of the force. In South Africa we had at one time 10 per cent., *i.e.*, 30,000 for 300,000 men, and none too many under the then conditions, when you consider that all the hospital beds provided can no more be made available at once, than all the men composing a force can be brought at one and the same time into the line of battle.

Given a sanitary organization and sanitary instruction of the army at large, the medical service is now content with a bare 7 per cent. of hospital beds, and is already counting the days until it can be satisfied with 5 per cent.

Lower than this it may not be possible to go, unless the enemy can be persuaded to shoot fewer, an expectation, it is feared, not to be counted upon.

Does not this mean an enormous saving in cumbrous hospital equipment? Is not the mobility of the army thereby enhanced and its military value increased? Does it not substantially lessen the strain on the transport and supply services? It may be thought that the medical service is engaged in the uncongenial task of performing the "happy dispatch" on itself, improving itself out of existence. There is no such prospect. Facts and figures have abundantly proved that the sick-rate varies inversely with the medical establishment. It is the addition to the medical establishment, given within the last few years, which has rendered possible the results which have been attained. It is the development of the preventive side of their work which has produced the effect noted.

So long as there were only enough officers to attend to the curative work in the hospitals, little could be done in the way of prevention. Once men became available to attend to prevention, hospital admissions began to dwindle, more men were set free to develop the preventive side, and the effect became cumulative. The results I have read to you.

The converse can be seen on the other side of the Channel. Two years ago I read in a French paper an article, in which the position was quite clearly exposed. The French were experiencing great

difficulties in recruiting medical officers. Their numbers were dwindling and, *pari passu*, the sick-rate was ascending. They had not been slow to appreciate the relation between cause and effect, nor had they failed to point it out.

The law is no new discovery, but the means for its application have only recently been given to us. Its recognition in war time will mean fewer men in the hospitals and more in the ranks, a consummation to be strenuously worked for.

The next great direct military assistance which the medical service gives is by disencumbering the fighting force of its non-effectives. To quote the official book:—

“The medical service in the field is based on the system of evacuating sick and wounded. The efficiency with which this system is organized greatly affects the mobility and *moral* of the army.

“The medical service will deal with the discipline, pay, clothing, and disposal of all sick and wounded from the time they come under medical care until they are discharged to duty.”

That is to say that, having by close and careful sanitary supervision ensured to the commander the maximum number of men in the fighting line, the duty then devolves on that service of freeing him from all encumbrances in the way of non-effectives, and arranging for their disposal.

The presence of large numbers of sick and wounded with a fighting force hampers its movements, throws an unfair and unremunerative strain on the supply service, and has a depressing effect on the troops, at a time when it is most important that their spirit should be maintained at its highest pitch. Prompt removal is, therefore, a matter of military urgency. It is the more urgent when troops are not flushed by success, but are, perhaps, dashed by a check or defeat.

Instances of armies being immobilized by the want of means for disposing of their casualties are not uncommon. Our own plight after the Alma is a case in point.

The necessity for a special organization for the speedy removal of the wounded from the field was first recognized by the French in their period of greatest military glory. The originators were Baron Larrey and Baron Percy, two of the most famous of military surgeons. These organizations were first started in the revolutionary armies, and were subsequently fostered and encouraged by Napoleon. Humanitarianism played but a small part in their conception; they were instituted on their military merits. It was recognized that, if quickly retrieved, wounded recovered in greater numbers and more speedily found their way back to the ranks; that the men were inspirited by seeing prompt care taken of their stricken comrades; and that the presence of special bearers afforded some check on what had become a crying evil—the practice of men leaving the ranks on

pretence of conveying a wounded comrade to the rear. Three very cogent military reasons.

Baron Percy, in describing the inception of his organization, says: "Tired of the ceaseless disorder caused by the assemblage of undisciplined hospital attendants; distressed at seeing the deaths on the field of so great a number of soldiers whose lives might have been preserved and limbs saved if they had had the help of a commodious and well-organized mode of transport; having seen, moreover, the necessity of having as near as possible to the line of battle men specially destined to carry off the wounded, instead of leaving them to the care of soldiers, who too often seized this opportunity for leaving the ranks; I took upon myself to organize a Regular Corps of army hospital attendants (*soldats infirmiers*), to whom I gave the name of companies of *brancardiers*."

These stretcher-bearers were subsequently regularized by an Imperial Decree for the whole French Army.

It will be seen that the desire to do away with disorder and to limit the opportunities for shirkers was, at least, as potent a reason for their introduction as the wish to soften the hard lot of the wounded.

Speedy evacuation of the wounded has another military advantage, which is by no means unrecognized. We have been told of the extraordinary efforts made by the Russians to clear away their wounded before abandoning any of the battle grounds in Manchuria, and of the great success with which their efforts were attended. To say that this was due to any fear of ill-treatment would be a libel on the Japanese. The latter were just as eager and successful in getting their own wounded away. The reason was obviously that the enemy should not be able to gauge the damage he had done. Few things are more baffling and discouraging to an army after a hard fought engagement than the want of knowledge or evidence of the weight of the blow struck. Is not the abandonment of wounded the surest and most clinching evidence of defeat?

An instance from the American War may serve as an illustration, if illustration be needed.

In the account of Stonewall Jackson's retirement from Kernstown, where he had mauled a force of the enemy largely superior to his own, but knew he had only mauled it, and that it was still in the immediate vicinity, Colonel Henderson tells us: "During the evening of the 23rd the Medical Director of the Valley army was ordered to collect vehicles and send the wounded to the rear before the troops resumed their march. Some time after midnight Dr. Maguire finding that there were still a large number awaiting removal, reported the circumstances to the General, adding that he did not know where to get the means of transport, and that unless some expedient were discovered the men must be abandoned. Jackson ordered him to impress carriages in the neighbourhood. 'But,' said the surgeon,

‘that requires time; can you stay until it has been done?’ ‘**Make your mind easy,**’ was the reply. ‘This army stays here until the **last** man is removed. Before I leave them to the enemy I will lose **many** men more.’”

Having initially secured to the commander the maximum number of men in the fighting line, having then removed all non-effectives, and so maintained the mobility of the force, the next pre-occupation of the medical service is to return as speedily as possible all who, having been temporarily disabled, have recovered sufficiently to resume their place in the ranks. Here, again, the efficiency of the medical service bears directly on the fighting efficiency of the force. A lax and ill-organized medical service in the early stages of the Peninsular War was the cause of Wellington’s ranks being depleted, and of a large proportion of his men being wasted in his hospitals and in the pleasure haunts of Lisbon. I have already mentioned the difference that a capable administrator and an efficient service made. Examples might be multiplied.

This function of the medical service is one of increasing importance, as the great advances of surgical science and the nature of the wounds made by the present small bore bullets have greatly increased the proportion of wounded who, given early and skilful treatment, will be able quickly to return to their places in the ranks.

The hospitals, whilst retaining their old character of havens for the poor unfortunates broken down by the vicissitudes of war, are becoming more and more great repairing shops for the Army. I have already quoted Manchurian figures to this effect, as well as the figures of Lord Methuen’s Division in the advance from the Orange River.

There is one other aspect on which, perhaps, a word may be said. Besides warding off disease and so keeping the ranks full, the medical service may be of further assistance by helping to keep the men fit or make them fitter. We all know the dangers of staleness. Nothing conduces more to that state than a monotony of diet. By narrowly watching the ration scales and suggesting timely variations the medical officer can be of material help. Similarly, by keeping an eye on the clothing he can be of use, by gauging the demands which are made on the physical powers of the men he may at times be able to make valuable suggestions, and so assist in nursing the men. Of course such suggestions are for the commander to take or leave; they must always be dominated by the military necessities; but if offered with discretion and based on sound physiological knowledge (without such knowledge they would probably be useless), such suggestions will frequently be found to amply repay consideration. It is often by attention to minutiae that excellence is gained.

There is no more astounding example of great results following small causes than the birth of the Japanese Navy as a Sea Power,

a result strange as it may seem, due to a dietary suggestion made by a young Japanese naval medical officer. The Japanese ships had been tied to their own shores by the fact that on a long voyage the crews invariably became disabled from beri beri. This young naval medical officer, Takaki by name, after a patient investigation, became convinced that the cause of the trouble lay in an unsuitable ration. He pressed his views on the authorities, but met with every kind of opposition and discouragement. Still he persisted, and eventually succeeded in wringing a reluctant trial. The change suggested was quite a small one, the substitution of a proportion of barley for some of the rice which formed the staple of the diet. But it was scientifically correct and the results were momentous. Beri beri was banished from the ships, Japan became a Sea Power, and Takaki a Baron of the Empire.

It would seem, then, from the foregoing considerations that an efficient medical service is no mean asset to an army in the field. If regarded in this light, as a help to the commander and to the troops, as a valuable adjunct in making and keeping the army fit for the task it has to perform, the demands which it is obliged to make—and they are admittedly not inconsiderable—will receive in the future that sympathetic consideration which they have sometimes lacked in the past.

X.

SIMPLICITY AND COMPLEXITY IN OUR ELEMENTARY TRAINING FOR WAR.

By LIEUT.-COLONEL F. C. LAING, Commanding 121st Pioneers.

THE age we live in is one of progress. From the scientific point of view immense strides have been made in our knowledge of natural phenomena, and the general tendency is for such knowledge to be much more widely known throughout the civilized world than ever it was in the past. This increase of knowledge, together with its wide dissemination, is not confined to physical and physiological science alone, but we find it in other fields, and notably in the science of war. What was once considered as either a gentlemanly pastime, or a means of livelihood for the adventurer, has now become a serious occupation calling forth much intellectual study. The necessity for such study is unquestionable, but the suitability of the methods employed and the amount of energy to be expended on purely brain work are questions which deserve some consideration. It is interesting to observe that the doctrines of war bear a strange resemblance to those of theology, for we find that just as the simple tenets of the latter have been so complicated, shrouded in mystery, and surrounded with ritual that to the lay mind they have become almost unintelligible, so the simple arts of war have been seized on by military dogmatists and so twisted and turned that experts are required to understand them, let alone teach them. We not only have our Field Service and other Regulations, but we are inundated with pamphlets, treatises, memoranda, &c., which, however admirable as an indication of the interest taken in the study of war, do not tend always to elucidate, but, on the contrary, clog the mind with all sorts of antagonistic theories.

The object of this paper is to offer a plea for simplicity, and to make a mild remonstrance against some of the methods employed by our military teachers. In this connection, however, I would ask the reader to remember that my plea is more directly offered on behalf of the Indian Army *and the other alien races* we utilize for war.

In the first place, let us consider how military education is progressing at the present day. In addition to the already mentioned

text-books, we have at our disposal many excellent works on past campaigns which we are encouraged to read, a wise and useful thing to do if not carried to excess; but apart from this we still have further instruction in war: we have endless talk! Everbody talks, from the generals who criticize manoeuvres to the lance-corporal who teaches a squad; we live, in fact, in a whirlwind of words, and the only wonder is that out of this tornado of rhetoric anyone is able to emerge perfectly sane. If in war everything is simple, but the simple is difficult, how much more difficult is it made when the language considered necessary to use in official works is anything but simple?

For the sake of example, let us take our Infantry Training; open it at practically any page beyond Squad Drill, and let us take haphazard a paragraph intended for the instruction, not only of the officers, but the rank and file of our cosmopolitan armies. I have just opened the book by chance at page 122, Part IV, and my eye lights on the following passage, section 12, line 19:—"It is of the highest importance that attacks should be delivered simultaneously by the largest possible force. Premature and spasmodic attempts to assault are almost certain to fail. A commander who decides to initiate an assault must therefore endeavour to organize a concerted movement by informing all other commanders in his vicinity of his intentions." Now this quotation is perfectly plain to an educated man, but I doubt very much whether it would convey much to the average British soldier of the best type—namely, from some rural district; what, indeed, would it mean to one of our Indian officers, or to a Sepoy from the wilds of the North-West Frontier? It is true we can get vernacular translations sometimes clearly expressed, but too often they are written in the stilted language of the educated Munshi, which conveys absolutely no meaning to the ordinary native soldier. The reply to this will probably be that the British officers are to lecture to their men and explain the meaning. Quite so; but consider the extra time required and how much simpler it would be if the original text-books were couched in such easy language that any N.C.O. or man could read and understand them.

We may, without being too uncomplimentary, take the average intelligence of our Indian Army ranks to be comparatively somewhat as follows:—The Indian officer of about the standard of a youth at an English school aged 15, possibly this is too high a standard in regard to actual book learning; the average N.C.O. we may compare to a schoolboy of 12; and the average Sepoy to a child of seven. When we remember, further, that the majority of recruits, at any rate amongst those regiments that enlist frontier men, are unable even to sign their names, I think we may reasonably ask for the war training of the ranks to be made as easy as possible, and this can only be done by teaching in simple language. I find from my own experience, and doubtless others have found the same, that men learn more easily

by means of question and answer. If then we take the above quoted paragraph, we find it can be translated intelligibly in two ways, the first somewhat as follows:—"It is of the greatest importance that assaults on a position should be made by the largest number of men we can collect together, and these assaults should be made at the same time; if they are not, they run the risk of being beaten one after the other. If a commander makes up his mind to assault, he must try to let all the other commanders near him know what he means to do." The diction is not in any way elegant, but at any rate there are no long words. Next let us translate the paragraph into a form of question and answer:—

Question 1. Why should assaults be made by as big a force as possible, and made together?

Answer 1. Because assaults made by a few men run the greatest risk of being defeated in detail.

Question 2. If a commander decides to assault, what must he first do?

Answer 2. Tell the commanders near him what he means to do, so that they may help him.

The whole of Infantry Training—and this is probably quite sufficient for the rank and file of our infantry—can thus be paraphrased and turned into the simplest language, and I would guarantee that if an examination were held on two squads of men, one taught by the book as it is written, and the other by means of simple question and answer, the latter would be far ahead of the former in their knowledge of war. It may be said that there are already plenty of brochures written to simplify our Infantry Training, &c.—such things, for example, as "Company Drill made Easy;" but if this is the case it surely proves the fact that our text-books are too difficult and complicated to be at once understood by the men.

Possibly in most official correspondence it is considered necessary for the language used to be pompous and grandiose; may it not be true, however, that as regards our Service Manuals we are sacrificing useful teaching to literary style? I have heard officers expound to their men, both British and native, the theories of tactics, drill, and musketry in a way which, judging by their faces, only left the audience bewildered, and as we may readily believe that but one man in a hundred is able to lecture, what a relief it would be for those who cannot if the official text-books were so simply written that the most dense could understand them. Our Company and Battalion Drill have now been condensed and partially simplified already. There are, however, one or two points which should be remedied. The first and most important is the stern repression of new words of command; they irritate the British soldier, but they are infinitely more perplexing and worrying to our native troops. There are probably half a dozen movements only which any body of troops is required to perform

in peace or war, yet we have pages of minute detail. On service, in the thick of a fight, it is more than probable that the only word likely to reach the men is "Advance," or in the case of Indian troops, "Chello bhai" ("Go on, brother"), and if one can induce them to do that we are halfway towards victory. Let us decide, therefore, not to let minute changes of movement or words of command creep in; let us remember that the English words convey no meaning to the foreign races we enlist, but each has to be learnt laboriously.

Now for a few words regarding our Musketry Regulations. It is a comparatively erudite work, it contains practically everything a man can need to know about rifle fire, but it errs again in over-complication. We wish, in all sincerity, for our men to be practical shots; they learn the peculiarities and capacities of their rifles as recruits, but for the trained soldier what do we require? About three things, all difficult to do but simple to understand. First, we require him to hit a small object, stationary and moving, fairly frequently up to a range of about 600 yards; secondly, we want him in the heat of the fight to hold his rifle more or less parallel with the ground, the muzzle neither pointing in the air nor towards the ground; thirdly, we wish to imbue him with sufficient fire discipline to obey words of command and signals, and to regulate his fire.

The theory of musketry is necessary for the officer and the musketry instructor; it is of very little use to the rank and file. The tribesmen on our Indian North-West Frontier are disconcertingly accurate shots, yet only a few of them have been taught by us; they cannot afford to waste ammunition, but with a few rounds they will generally do more damage than a similar number of trained soldiers firing twice the number of rounds. The simplest method of teaching our men is to make them aim at and hit small stationary and moving objects, first at close range and then at longer ones. Falling plates are the most instructive of all targets, and a man who can hit a 2-foot plate once in five shots at about 500 yards is a good enough shot for all practical purposes. Elaborate targets and marking are absolutely unnecessary; iron plates are economical and practical in every sense. The money saved by having such simple and durable targets would enable us to have more rounds to expend, which is really the only way to get efficient service shots. The musketry faddist, like the drill faddist, is the bane of the Army, especially the Indian Army. If it can only be realized that when men are seriously engaged their attention is so riveted on what is going on in front of them that they become almost hypnotized, all elaboration of detail in orders, all mechanical devices of a complicated nature for sighting, are useless. We want to train them to do the simplest things and to listen to the briefest and plainest possible instructions, and we want, in addition, to train their bodies to resist the wear and tear of prolonged fighting; the finest marksman in the world is useless unless he can march and

unless he is healthy enough to withstand disease. During the last 30 years it would be rash to say how many times not only tactical theories have altered, but even actual drill has been changed. The former must, we know, alter as weapons alter, but surely, having now reached the limit of possible movements for troops in the field, there can be no use in changing our drill or our words of command. If a change has to be made, let it be only in connection with some entirely new condition of war—for example, attack and defence against airships; otherwise, let the soldier have a long period of rest from superficial, unnecessary, and irritating alterations, and let us turn our attention to making him a satisfied, healthy, and intelligent fighting unit.

An impression seems to have recently arisen throughout the Army that modern war is as abstruse as it is difficult; it may be for the strategist, tactician, and the very senior officer, but it is not so for the junior officers and men. The latter require about three qualifications to turn them into invincible troops: first, ruthless determination to reach and get at the enemy; second, moderate cunning; third, bodies impervious to disease and fatigue, and nerves under control. All these, it will be noticed, are simple, but difficult to attain; what object is there in complicating them? Let us do our best to simplify them.

We talk of "fire being everything, the rest nothing," but it is so only when we have ample ammunition, when the men's nerves are sufficiently under control to enable them to fire fairly straight, and when their bodily fatigue is not so great as to prevent them firing at all—a series of conditions very rife in modern war. The cunning need not be of a very high order, but at present a West African savage might give us points in it. The third condition of success is probably the most difficult of all to attain. Civilization has encouraged nerves, disease, and physical weakness, but their cure is simple if approached with common sense. Elaborate systems of calisthenics and gymnastics are not at all necessary; fresh air, plenty of exercise, encouragement of games, and a few simple movements for developing the muscles are all that is required.

We have now briefly noticed some of the salient features of elementary training; it remains for us to make a short recapitulation. Only a few reforms are wanted, but they are wanted badly.

First, shorten if possible the Field Service Regulations, and, at all events, either simplify Infantry Training in its language or issue an easy English translation for use in the ranks.

Second, reduce the talk and increase the action. When lectures are necessary, let them be delivered by officers and others who have special talents in that direction; this is sometimes done, but not always.

Third, simplify musketry courses and targets ; if we can reduce the expenditure on the latter, as we can with iron plates, we can get more rounds to fire.

There is a tendency in these days of peace to lay too much stress on theory. We find long-winded dialecticians in every branch of life, but it is doubly dangerous to have them in the Army. Academical discussions as to the way each arm should be handled can be only profitable to very senior officers ; for the juniors and rank and file let us confine ourselves to the simplest movements guided by the simplest orders, and turn our attention more to the development of the men's fighting qualities and their physique.

In conclusion, I would merely add that my plea for simplicity in war training does not imply a reduction in it ; the simple is difficult, but it is made a thousand times more difficult when officers and men, especially the illiterate men of our Indian Army, are bombarded with obscure instructions, unimportant details, and frequent minor alterations in drill and training.

XI.

ESCORTS.

By MAJOR-GENERAL J. S. S. BARKER, C.B., G.O.C., R.A., Malta.

THERE is probably no distinctive duty which the regimental officer is more often called on to carry out, at manœuvres or on service, than that of escorting either artillery or a convoy of transport. There is also, perhaps, no duty which affords greater scope for the exhibition of ability and self-reliance, and none concerning which less is said in any of the text-books published for the regimental officers' guidance. Owing, no doubt, to the latter fact, remarkable diversity of opinion appears to exist, both among regimental officers and those in higher commands, as to the correct policy to be adopted, and the writer proposes to discuss, in the light of a somewhat wide experience, some of the points which he believes to be of the greatest importance.

The general principles which govern the handling of escorts to convoys are laid down in Field Service Regulations, Part I, pp. 188 and 189; while those which concern escorts for artillery are briefly alluded to on p. 115. Beyond stating, however, that an escort is to be provided when considered necessary, these latter instructions are too vague to be of much assistance to the seeker after knowledge, and as it is with regard to artillery escorts in particular that the writer has found the greatest variety of opinion to exist, it is proposed to discuss that side of the question first.

Supposing that an officer who is called on to act as escort to guns wishes to study his duties more closely, he would possibly, after digesting the above-mentioned instructions, turn to Field Artillery Training for further information. On p. 225 he would find the instructions given in the Field Service Regulations repeated, with the additional statement that he is responsible for the protection of the artillery. He would also find, on p. 254, that the special duties of an escort to horse artillery are: (1) To give timely warning of any threatened attack; (2) To keep hostile guns and riflemen beyond effective range of the guns he is protecting; and (3) To cover the withdrawal of the guns if attacked by greatly superior forces. It will probably not be clear to him, as it is not clear to the writer, why

there should be any special difference, as seems to be implied, between the duties of escorts to field and to horse artillery. He will rather imagine, as the writer imagines, that the duties of an escort to guns in war must be much the same whatever the guns may be—horse, field, mountain, or heavy guns of position. His conclusion will, therefore, no doubt be that, as the duties of an escort to horse artillery are more clearly defined than any others, he had better take those as a general guide and act up to them as far as circumstances will allow.

In carrying out the first of the above precepts, that of giving timely warning of any threatened attack, he will find no difficulty. All that he has to do is to send out scouts or reconnoitring patrols in each and every direction from which an attack may come, and himself keep in close connection both with those scouts and with the artillery commander. It is in this matter of keeping close communication with the guns that his first feeling of uncertainty will probably arise. If he commands an infantry escort, he will realize at once that communication by messengers on foot is far too slow a method to be of the slightest service, and that nothing but signalling is admissible. If, however, he is well provided with signallers, and if he has had previous experience of escort duty, he will have used his utmost endeavours to be so provided, his mind will remain untroubled. Keeping one pair of signallers at his side, and distributing the others either with the scouts or as connecting links between the scouts and himself, he will feel that warning of impending danger can be promptly transmitted to the battery.

Having thus satisfied himself that the first of his duties is satisfactorily arranged for, the second precept—that he must keep hostile guns and riflemen beyond effective range of the guns he is protecting—will rise up in his mind, and he will probably begin to feel grave doubts as to what precisely he is intended to do. His own guns may be, and in all probability are, at that very moment actually engaged either with hostile guns or with hostile riflemen, and are themselves under the fire of one or the other, or even of both. It surely cannot be meant that he is to attack these guns or riflemen and drive them beyond effective range. Such an idea would obviously be out of the question. The intention must rather be that he is to endeavour to prevent other hostile guns or riflemen from taking up positions on the flank of his own guns, and so distracting their attention from the task on which they are actually engaged. The more he considers the question, the more evident it will be to him that this is the real meaning of his instructions, and he will accordingly apply himself to carrying it out to the best of his ability.

Again, however, fresh doubts and difficulties will present themselves to him. His command is probably not more than a squadron or company at the outside, far too weak to offer any effective resistance

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to a serious attempt at diversion unless the country is particularly favourable. If he is so fortunate as to discover a strong, well-defined position, where his command will be able to make a protracted resistance, all will be well ; otherwise he will be tormented with fresh doubts as to what his real duties may be.

After considering the question in all its bearings, he will probably come to the conclusion that his action must inevitably depend entirely on the strength and determination of the hostile attacking force. He will, if attacked, have to make up his mind to follow out one of two courses. Either he must make such a resistance as to prevent the enemy from reaching his own guns, the latter being thus allowed to continue their action undisturbed ; or he must warn them of the enemy's advance, while delaying that advance to the utmost, in sufficient time to enable the artillery commander to take measures for securing his own safety. It has already been pointed out that the first-named course is not likely to be within his power ; the ultimate conclusion at which he will probably arrive is, therefore, that his duty is essentially one of reconnoitring and warning. To do this effectually, it is clear that the more widely his scouts are thrown out the better. If the country is at all close, or the field of view for any reason circumscribed, he should not hesitate to use up the bulk of his command in scouting, retaining only enough men to transmit news from the advanced scouts to his own position, and from his own position to the guns.

The above reasoning may seem so simple and obvious that the average regimental officer would follow it out instinctively and without any special mental effort, but the writer's experience is that this is by no means the case. He has, on the contrary, usually found the views both of the artillery commander and of the escort commander to be hazy in the extreme. It seems generally to be assumed that the escort will fulfil its task by taking up a covering position 1,000 yards or so away on the exposed flank, but the extreme danger of such a proceeding has only to be mentioned to be appreciated. It is obvious that a strong and sudden attack which drives back the whole or a portion of the escort at once places the enemy within effective range of the guns. In these days of smokeless powder the fact that the escort is being attacked may easily escape the artillery commander's notice ; while the escort commander, with every faculty concentrated on the situation of his own command, may equally easily neglect to send warning to the guns. In such circumstances a disaster is inevitable.

Two conclusions then follow from the foregoing considerations. First, that the duties of an artillery escort are rather those of reconnoitring than of fighting ; and, secondly, that those duties will be performed with incomparably greater efficiency by horsemen than by infantry. The second conclusion follows naturally from the

first, as the efficiency of reconnoitring depends chiefly on the distance to which the scouts can be sent and the rapidity with which they can reach their destination. This, of course, assumes that the country is practicable for horsemen. If it is not, infantry must be used; but the efficiency of the service will suffer.

Before leaving this part of the subject, it may be as well to draw attention to the concluding remarks in the instructions for escorts to horse artillery contained in *Field Artillery Training*. These remarks draw attention to the importance of maintaining communication between the guns and the escort, and direct that the escort commander is to attach, for this purpose, an officer or non-commissioned officer to the artillery commander. Such an arrangement does not seem, in practice, advisable. For the reasons already given the writer believes signalling to be the only means of communication suitable to the case; and if signalling communication is established, it is not clear what good the attached officer or N.C.O. could do. It is evident that he could take no part in transmitting information from the escort to the guns, and warning of an intended change of position could obviously be sent to the escort more rapidly by signal than by messenger.

The task of the commander of an escort to a convoy differs in many respects from that of an artillery escort commander. In the first place, the convoy is not only totally unable to protect itself or to aid in its own defence in any way whatever, but it is, in most cases, peculiarly liable to panic and disorder at the mere threat of danger. In the second place, from the nature of the case, artillery, however detached, must always be in the neighbourhood of other troops. In fact, as pointed out in the *Field Service Regulations*, in the majority of cases its liability to attack will be much the same as that of the rest of the force, and consequently no separate escort will be necessary.

With a convoy, however, the case is entirely different. It moves from the base of supplies to join the fighting troops, and for days together may be entirely dependent for safety on the strength of its escort or on the forbearance of the enemy. This being so, it is obvious that its escort should, theoretically, be strong enough to resist any hostile force which is likely to be brought against it, but, for various reasons, this is very rarely the case in practice. In fact, in actual war the escort is often so entirely inadequate that the safety of the convoy depends in reality on its escaping notice, and the escort might, for all practical purposes, be non-existent, a point which is strongly emphasized by the experience of the South African War. The writer cannot discover a single instance in which a convoy, either British or Boer, was subjected to an attack worthy of the name and escaped capture. In all cases the presence of the escort afforded no protection to the convoy, and merely gave the attackers a richer booty. The logical inference seems, therefore, to be that it would have been wiser,

always supposing that the escort actually detailed represented the greatest force that could be spared for the purpose, to have trusted entirely to the intelligence received as to the whereabouts of the enemy, and to have despatched convoys only when the route was clear. This aspect of the question is, however, somewhat outside the scope of the present paper, which proposes rather to discuss the course to be pursued by an officer who, for good or ill, finds himself in the position of an escort commander.

As stated above such an officer will find instructions for his guidance in Part I of the Field Service Regulations. As these instructions are specifically stated to apply to warfare in uncivilized countries, and as it is only in such warfare that the British officer is likely to find himself engaged, he may proceed to study them without further consideration. In the first place, he will notice the different methods laid down for the ordering of convoys—namely, the “Through,” the “Staging,” and the “Meeting” systems. Of these, the two last are described as applicable chiefly to the line of communications in rear of the advanced dépôt, a situation which implies a well-defined route along which troops and stores are constantly moving, and from which the enemy has been driven by the advance of the main army, or from which he is kept by forces disposed on the flanks. In such cases it is only necessary to guard against raids or incursions by small parties, and they need not, therefore, be further considered here.

It is rather the case of the “Through” convoy, which has to traverse a hostile country and must depend entirely on its own resources, which calls for the exercise of every military quality that its commander is fortunate enough to possess. The escort to such a convoy is, in fact, a miniature army hampered by the presence of an abnormally cumbrous train, and it is from such a point of view that its commander must regard the situation. In studying the instructions already mentioned, our commander will find a short paragraph so pregnant with meaning, that it seems advisable to discuss it in detail. It runs as follows: “The special business of the commander of a convoy is to conduct the convoy safely to its destination. Secrecy is most important. Under no circumstances should anything be done to provoke an attack. If fighting is inevitable, the enemy should be engaged as far from the convoy as possible.”

It will be noticed that great stress is laid on two points. In the first place, an attack is, if possible, to be altogether avoided; and, in the second place, if an attack cannot be avoided, the commander should so order matters as to sustain the attack at the greatest possible distance from his convoy. Like the artillery escort commander whose mental processes have already been discussed, he will realize that wide scouting is of the first importance. This scouting will probably be necessary on every side, for he will be fortunate indeed if he can safely regard the absence of the enemy in any particular direction

as an absolute certainty. If he can do so, then the second necessity, that of engaging the enemy as far away as possible, becomes enormously simplified, as he can safely march his escort at a suitable distance from his convoy. Failing such a fortunate state of things, he will be wise, unless his command is altogether too small to be of any real use, to divide it into two portions and march one-half on each flank.

The instructions as to avoiding any action which might provoke an attack should not, in the writer's opinion, be interpreted too literally. If the scouts are thrown out, as they should be, to the extreme distance that circumstances will allow, and if they discover a hostile force moving in such a manner that it may presently discover the convoy, it may be, and very probably will be, the wisest course for the escort commander to make a vigorous attack with the object of inducing the enemy to believe that he has encountered a flying column or some similar force. Such an attack should, of course, be made so as to give the greatest possible impression of strength, and care should be taken to arrange for safe retreat when the convoy is beyond reach of danger.

It only remains then for the commander to decide how far from the convoy the escort should march, and what practical interpretation should be given to the injunction to engage the enemy "as far from the convoy as possible." The writer's experience in South Africa showed that average regimental officers considered it sufficient to keep the main body of their command at a long rifle shot, more or less, from the convoy. This view of the case resembles that given above as what should be the action of an artillery escort, and is, for the same reasons, dangerous in the extreme. It is, of course, impossible to lay down anything resembling a hard and fast rule, but the writer considers that the expression "as far as possible" should, under favourable conditions, be interpreted as meaning several miles, and the weaker the escort the greater should be the distance of the engagement from the route of the convoy. There is, of course, the danger that the enemy may, in such cases, be able to pass round the flank of the escort, but it must be remembered that, if the attack is sustained near the convoy, disaster is almost a foregone conclusion, and the danger must be faced and guarded against so far as may be.

That the danger is no imaginary one is proved by numerous incidents in South Africa. In the attack on Lord Roberts' convoy at Waterval Drift, in February, 1900,¹ the escort, consisting of about 100 infantry and 300 mounted infantry, was bivouacked close to the wagons, which, at the time of the attack, were halted on the right bank of the Riet River. Although it seems to have been known that a considerable force of Boers was somewhere on the right flank, *i.e.*, to the eastward, no attempt at scouting either in that or in any other

¹ Official History of the War in South Africa, Vol. III, pp. 205 *et seq.*

direction appears to have been made. When, therefore, De Wet made his attack the utmost that could be done was to form a line of defence about 400 yards from the wagons. The inevitable consequence was that the latter were almost immediately under fire from guns, pom-poms, and rifles, a stampede ensued among the oxen and drivers, and, in spite of two attempts at relief, the entire convoy was captured.

In February, 1902,² again, a large convoy, with an escort of nearly 500 men, two field-guns, a pom-pom, and two maxims, was attacked by De La Rey near Klerksdorp. In this instance, as in many others, the possibility of attack was known, though its actual direction could not be foreseen. Nevertheless so limited was the area searched by the scouts that, on the first attack, which was made when the convoy had not moved more than a mile and a half from its camp, "a volley from the wooded crest close in front struck not only the advanced guard, but the leading wagons, the mules of which promptly wheeled and raced in panic towards the rear." The resistance of the escort was stubborn in the extreme and the loss heavy, but the result was the capture and destruction of the whole.

In the above instances, as in many others which can be found by the student of the Official History, the primary fault lay in the lack of efficient and distant scouting. It is true that the escorts usually consisted largely of infantry, but, even so, sufficient use seldom seems to have been made of such horsemen as were available. The presence of infantry also hampered the defence in another way, as their slowness or movement prevented their meeting the enemy at a sufficient distance from the wagons. The inevitable conclusion appears, therefore, to the writer to be that, if the country is rideable, horsemen only should be used for escorts, whether for guns or for convoys.

The vagueness and uncertainty as to the duties of an escort commander which the writer has found to exist in the minds of regimental officers have already been alluded to. Our disastrous experiences in South Africa may have done something to remove them, but they may still be found in evidence both at manoeuvres and in work done at Staff rides and in examinations for tactical fitness. At the risk of appearing to attach undue importance to trifles, the writer would like, before concluding, to call attention to a circumstance which seems to him, in some sort, typical of the usual views on the subject. There is a well-known picture, entitled "L'Attaque d'un Convoi," by Edouard Detaille, engravings of which may often be seen in mess and ante rooms, representing an attack by German Cuirassiers on a French convoy guarded by infantry. While the writer has often heard admiration expressed at the animation and realism of the scene, he has never yet heard a single comment

² Official History of the War in South Africa, Vol. IV, pp. 410 *et seq.*

made on the sufficiently obvious fact that both sides are committing the gravest tactical faults imaginable. On the one hand, the defenders are represented as distributed, in no particular formation, among the very wagons themselves, the worst possible disposition that could have been made. On the other hand, and as if to give the escort commander a chance of redeeming his error, the attacking cuirassiers are depicted as charging in loose order up to the very muzzles of the escort's rifles. Surely a moment's reflection would have shown the artist that the cavalry leader who was so lucky as to catch a convoy in such an unfortunate position had only to dismount a few troopers and make them open fire on the wagon teams to ensure immediate and complete success, probably without the loss of a single man. On the other hand, if the escort commander who was caught in such a predicament had some magical power of compelling his adversary to attack in the manner least likely to ensure success, he would surely exercise that power by compelling that adversary to charge.

XII.

A TACTICAL PROBLEM FOR PRACTICAL SOLUTION.

By MAJOR-GENERAL J. L. KEIR, C.B., Commanding South Midland Division.

PART I.

THE IMPORTANCE OF COMBINATION OF GUNS AND INFANTRY.

IT has come to be recognized that one of the factors which will decide the next war will be the skill with which the fighting powers of the infantry are interwoven with those of the artillery—the closer union between the bullet and its powerful auxiliary, the shell—and that, other things being equal, victory on the battlefield will probably incline to that side which has learnt how to turn this combination of force to the best advantage. This being so, it may be worth our while to devote some time to a consideration of how we can best achieve this object.

The old method of attack was a heavy blow delivered by a huge mass of artillery in a long visible line. Then a pause, followed by the advance of the infantry, during which advance they received little or no support from their guns, as these had relaxed their efforts, considering that their fire was masked by their own advancing troops. At the final assault the rôle of the guns was to advance practically into the firing line to join in the final effort to storm the position.

In the combined attack of to-day much more advantage will have to be taken of quickness and surprise. The artillery has become, like the cavalry, an arm of opportunity, as its actual position and strength will remain unknown, and it will await a favourable opportunity to make full use of the weapons which modern science has placed in its hands.

The system which assembled guns in rigid masses has given way to a more elastic and scientific one. The possibilities of the quick-firing shielded gun permit of sections, and even single guns, being placed at the disposal of hard-pressed infantry commanders.

But although guns have ceased to be assembled in large visible masses, they have by no means lost their power of concentration ;

and although different groups will be allotted separate tasks, a considerable proportion can, where required to do so, combine for a common purpose.

In a skilfully conducted action of the present day the artillery having delivered its blow, the infantry will allow no breathing time to the enemy for recovery, but will, under cover of the shell fire, advance as far as possible, so as to get to close grips with their enemy, and be able to add long or medium range rifle fire to that of the guns.

As in a fight between two pugilists, the winner of the round will probably be the one who, having delivered a punishing blow, can by superior quickness and dexterity follow it up by another before his adversary has had time to recover ; so will it be in a well-combined attack of the two arms.

Another feature of modern fighting is the involuntary formation of irregularly constituted battle groups under changing leadership, each striving to achieve a definite object, for a common purpose, on the extensive battle area.

Views with regard to the theory of the close support of the infantry are undergoing a change. When the support of the infantry attack took the form of a huge battery firing at a general target, a considerable portion of its fire was naturally masked by the advancing infantry, whose forward movement became the signal for a large number of the guns to cease firing. The gunners then became unwilling spectators of the infantry conducting the attack on the position single-handed. The theory of the close support of the infantry attack then came into being, and has now been worked into a phase of the artillery attack. In the days of smoke powder and concentrated artillery the theory was a laudable one, based as it was on a truly chivalrous feeling to share with the infantry the dangers and losses of an action. Examined in the light of to-day it has some serious drawbacks. A well-posted brigade or battery is in action at a range of 3,000 or 4,000 yards from the enemy, supporting by an effective fire the infantry attack. A period in the fight is reached when, apparently, the officer commanding the artillery has to decide whether he will continue his fire at the risk of dropping some shells among his own infantry, or limber up his guns and advance to their close support. Whether this decision should rest with him is a matter we will discuss later. Without consulting the officer commanding the infantry he decides to limber up his guns and advance to the closer range, at possibly the very moment when the infantry are most in need of artillery support, the withdrawal of which may have a serious effect upon the action. Previous reconnaissance of his new position has hardly been possible, and the guns are brought into action, forming the most conspicuous of targets at close infantry range. They may have given moral support, but at the expense of physical destruction, and this sacrifice is to be performed under the

eyes of the infantry, who now know that the whole brunt of the attack must hereafter fall on them.

In this transaction too much is thrown on the judgment of the artillery commander. If he is good he will either remain in action, or, should the ground be favourable, advance to a more forward position with all or a part of his command. A bad commander who has had instilled into him the doctrine of the close support may, in his endeavours to carry it out blindly without considering the circumstances of the moment, or consulting the officer commanding infantry, deprive his force of all support.

If we study how to carry out the close support of the infantry with our shells rather than with our guns; arrange for each infantry attack to be supported by its own force of artillery; and place the command of these two forces under one commander, who will rule the actions of each so as to help forward the object of both; all remarks about the close support of the infantry attack may be removed from training manuals. One of the chief sources of strength of the artillery is its long range, which enables it to attack the other arms without danger to itself. This advantage should only be surrendered when very great compensations are offered. The close support of infantry by guns in position at medium ranges is a matter which deserves more study than we are at present devoting to it.

The following extract from an article in *THE ARMY REVIEW* for April last expresses the views of the French artillery on this subject :—

“ It is interesting to note, however, that prominent artillery officers express a very strong opinion on the subject of guns being sent to accompany infantry to very close quarters. They point out that, so far from the moral effect of such procedure being good, it is likely to have quite the contrary effect on the infantry if the latter see their guns smashed to pieces and reduced to impotence alongside them. It is understood that this opinion is shared by the majority of artillery officers, and endeavours are being made during practice to demonstrate to the infantry officers present how effectively the co-operating artillery would support an attack, even at ranges of 3,000 yards and over.”

What form these endeavours are to take is not stated. A proposal for a similar endeavour on our part forms the principal subject of this article.

It is generally accepted by the leading armies of Europe that, in order to support the attack to their full power, guns will have to fire over the heads of their own infantry. All realize the danger connected with this procedure. What, however, we require to ascertain in peace time is the limit of safety—that is to say, the point up to which our infantry can advance towards the enemy's position under cover of the fire of their own guns with absolute safety. This

limit of safety will naturally depend upon the formation of the intervening ground and the point from which the artillery fire is directed. For instance, when the enemy occupies a position on a ridge falling steeply to the front, it will be comparatively safe for the attackers to advance much closer under the support of their own guns than when the position attacked is on the same level with the attackers, or nearly so. We must begin with caution to accustom our infantry to see and hear shell quite close to them, and our artillery commanders to the appearance of infantry 200 or 300 yards short of a target 3,000 yards distant, so that they may have confidence, and be able to support them up to the latest possible moment. Want of this confidence will result in the artillery support being withdrawn too soon.

The perfection of a modern combined attack might be represented by a commander with his hands on two electric buttons, one of which connects him with his guns, the other with his firing line. At spaces where the infantry find difficulty in crossing he presses the artillery button for rapid fire, and at the same time the infantry one for it to advance. At the final assault he times the advance of the firing line to follow without any pause the rapid artillery fire which precedes it. The more we approach to this ideal the better chance we shall have of reducing our losses by skilful leadership without an undue waste of ammunition. For although neither losses nor ammunition should be spared in the attainment of a tactical success, the conception of perfect leadership is to obtain the desired object without having wasted either men or ammunition.

Two works by General Percin, of the French Army, an officer whose eminence and experience entitle his opinion to great respect, have recently attracted the notice of artillery officers. In the first, *The Artillery at the Picardy Manœuvres in 1910*,¹ he gives a clear exposition of his views with regard to the tactical training of modern field artillery in actual combination with the other arms, a keynote of which appears to be, "All troops of whatever arm employed for the time being in one operation, on the field, must be under the orders of the same commander." He adds that this commander should draw up one set of orders for all three arms. Among the concluding remarks the following occurs :—

"Nothing is more tempting to the gunner than to fire at infantry on the march, however few they may be; and nothing is more useless, because nine times out of ten he will miss the target. Even if he hits it he does not help the advance of his own infantry a single step forward.

"The best way of aiding their progress is to shell the place from where the shots are being fired which are stopping the

¹ Translated by Major H. M. Montgomery, R.F.A.

attack. The desired result will often be achieved without causing the defender a single casualty."

Most of us have seen examples of this at our own field days, where batteries as a rule change their objective too often. There is frequently a feverish desire to open fire at something, and complaints are heard that there are no targets for the guns, quite forgetting that whenever there is resistance to the advance of the infantry there must exist a target, visible or invisible, for the artillery.

In his second work, *Five Years' Experience of Artillery Inspections*,² he lays bare the conservatism of the French artillery, which stands in the way of their becoming good partners in the three-arm compact. He lays down the following principles :—

- (1) It is more important for guns to fire at the right target at the right moment than for them to attempt to produce destructive effect against unseen targets by the exercise of extreme accuracy.
- (2) The *first* duty of artillery is to support the infantry.
- (3) The problem of the economy of fire has not received sufficient attention.

PART II.

The practical attempts to combine the working of guns with infantry may be classed under three heads : (1) Artillery practice camps ; (2) Manceuvres ; (3) Combined field firing.

ARTILLERY PRACTICE CAMPS.

It has been suggested that units of infantry should be sent to artillery practice camps for combined work during the whole course of their duration. The result of this would be that the artillery would be hampered in their work, and that the infantry would waste much valuable time. These camps exist for technical instruction, and although the exercises are based on tactical situations, owing to restrictions as to ground and range precautions for safety, the opportunities for tactical instruction are very circumscribed. They are also useful for officers of all ranks, in order that they may be kept up-to-date in artillery matters.

With regard to the tactical instruction of artillery officers at artillery practice camps, General Percin writes :—

"The tactical training of artillery officers is impossible at practice camps, where there is no infantry, and where tactical lessons are necessarily subordinated to those of gunnery. Operations in which only the artillery cadres take part in conjunction with infantry are of more value for this purpose than those in which the guns are present without infantry."

Many of us are in entire agreement with the above.

Translated by Lieutenant C. E. D. Bridge, R.H.A.

MANŒUVRES.

We now turn to manœuvres. Here we have the actual troops on the ground. The tactical instruction is much more realistic. For although we are restricted to blank ammunition, still we have made a considerable advance on what was little better than a paper scheme.

It is unfortunate that justice to the good work done by artillery at manœuvres demands such a severe strain on the imaginative faculties of the Umpire staff. To take an extreme case: A battery of the heaviest type of guns is in action at a range of 6,000 yards, preparing the way for an attack on a position. At the conference following the operations it is probably not represented, and although on active service it would have played a very important part, its good work is possibly entirely obscured by some minor skirmish which took place at a prominent part of the manœuvre area. Again, it is common for guns to be supporting an infantry attack at a range of 3,000 yards or so, without the latter being aware of their presence or that they were supposed to be acting in combination.

At the artillery practice camp we have the shell without the troops. At manœuvres the troops without the shell. At the former is taught the art of hitting difficult targets, and at the latter should be taught the much more important lesson of supporting the infantry attack.

COMBINED FIELD FIRING.

In India what is known as combined field firing takes place usually at least once during the training season; but up to the present, as far as my very limited experience goes, the combination has not been realized. At this exercise the guns fire shell, the infantry ball ammunition; but as the movements of the enemy are imaginary the exercise naturally takes the form of a more or less "set-piece." The guns, as a rule, begin the operations by firing at a rather easy target, after which the infantry portion of the attack commences, they having watched the artillery display without learning any lesson, if indeed any was intended to be taught. The two arms are certainly present, but there is no combination between them. The artillery very probably does not even fire at the objective of the infantry attack.

The description of exercise I would propose to substitute for this I will describe in the next part, stating afterwards the advantages claimed for it. I hold that the system of using the guns at these so-called combined firing days is, in many cases, quite out of date, and gives an impression that we do not trust ourselves to practise in any form in peace what we propose to do in war.

So far the infantry have only been allowed to view the action of the shell at the very commencement of its course. Endeavours

should be made to enable them to study its movements during flight, and most of all its action at the termination of its trajectory when it gives birth to its brood of destructive bullets.

Although the profession of a soldier is essentially a practical one, his teaching in peace must be largely based on theory. Only a civilized campaign can yield us any real experience of modern warfare, and the nearer we can approximate to this the easier will it be for us to form just conceptions of the war of the future. Most of us fail in imagination. We require this endowment to be stimulated by true and vivid pictures which will make a lasting impression on the mind. We must, in fact, approach as near as we can to realism.

The fact that from the time the sailor goes on board his ship until the time he leaves it he is practically on active service is one of the chief assets in naval training. The lives of hundreds of men are at the mercy of a single individual; a sense of real responsibility pervades all ranks. All are face to face with stern realities. If every soldier when going on manoeuvres knew that an act of carelessness or neglect on his part would (as will be the case on active service) endanger the lives of hundreds, the task of his instruction would be a much easier one. Any step therefore towards realism is a step in the right direction. We desire to make a picture in which troops are present; the guns are firing shell; and both are working in union for a common end.

PART III.

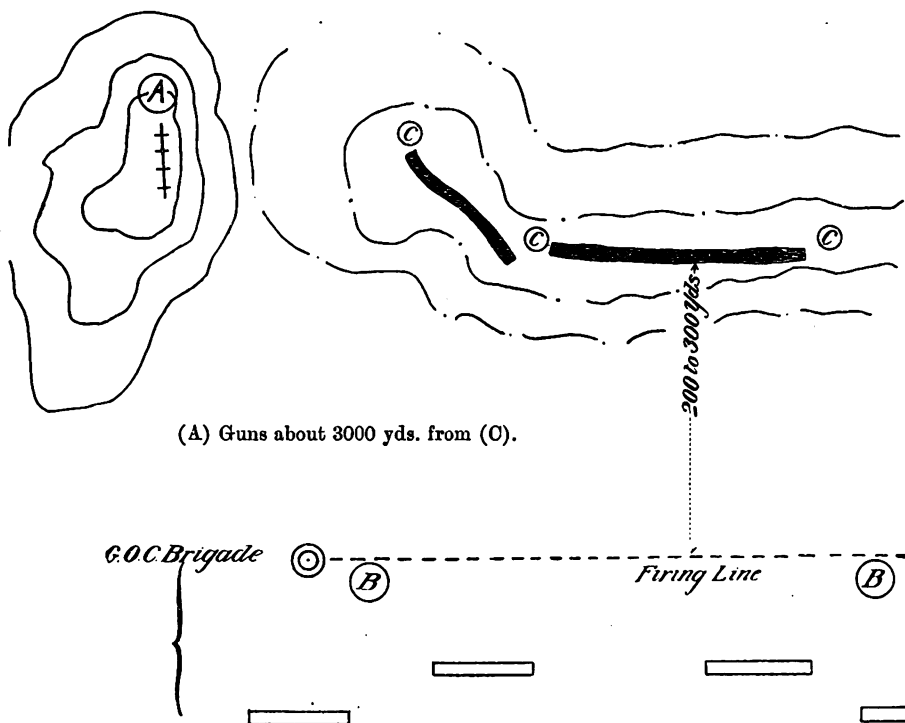
PLAN FOR A PRACTICAL DEMONSTRATION OF COMBINED GUN AND RIFLE FIRE.

Assuming that the battle of the future will consist of a number of encounters, taking place more or less simultaneously over a widely extended front, with a common object in view, our endeavour will be to give some idea of one of these encounters, making it as realistic as peace conditions will allow. We imagine a situation in which the action of the hostile artillery (if any) is being dealt with by a force of its own arm, specially told off for this purpose, and in which the commander of a brigade of infantry has had placed at his disposal and under his orders by the artillery divisional commander a battery of artillery to aid him in his attack on a certain position. We also presume that the brigadier after assuming command gives orders to the whole force, with the necessary information to each arm concerning the movements and objects of the other one.

We now endeavour to picture a position difficult to assault with infantry alone without great loss, but which could be captured with comparatively few casualties with the aid of a well-handled force of artillery worked in artistic combination with the infantry attack, placing the former in a very advantageous position. Such a situation is common enough in most Asiatic warfare where an unskilful

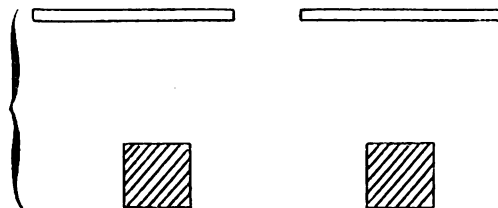
handling of the artillery means the forfeiture of one of our chief advantages.

The attached diagram explains the relative position of the guns (A), the attacking infantry (B), and the defensive position (C).



The brigadier having issued his orders, the operations commence.

The infantry brigade, previously assembled 4,000 or 5,000 yards from the position, according to the nature of the intervening ground,



then commences the attack. During the first stage of its advance the battery obtains its range (a safety precaution). It then ceases fire. On arrival of the infantry firing line at the point where it is considered that it would come under an effective rifle fire from the enemy's position, the battery commences fire at one or two minutes' interval, to represent ordinary fire. The brigade continues to advance, firing on the position with ball ammunition, until the limit of safety has been reached (between 200 and 300 yards from the position), where the firing line is reinforced for the final assault. At this point the brigadier orders the battery to open rapid fire, in the course of which it expends the remaining rounds at its disposal. At the conclusion of the artillery fire the infantry, who have fixed bayonets, charge the position, making the interval between the last round and their advance as short as possible.

During the whole advance the brigadier accompanies the more forward portion of the firing line on the flank nearest to his supporting battery to superintend the safety of the proceedings. In time he will be able to direct them from his proper position; but as at present any mishap would cause a setback, safety is of the first importance. Telephonic communication is kept up with the battery from a position some way in rear of the firing line. All orders are issued by this channel.

I have now conducted an operation of this kind on at least six different occasions, and have always ended with the infantry firing line within 200 or 300 yards of the front attacked, and on which a rapid fire of artillery is actually being brought to bear. With ordinary precautions I do not consider that there is danger attached to the proceedings, certainly nothing to compare with that incurred by our Navy in the course of their annual manœuvres. Much misconception exists with regard to the dangers attendant on artillery practice. An unfortunate accident occurred in India some years ago owing to a battery having fired by mistake upon its range party. It was asked whether, in the face of this, it were wise to carry out the system of combined firing now advocated. At the same time I quite understand, and do not recommend that in its present initiative stage this method should receive general official sanction and become a regulation. If, however, we make use of it under the most favourable conditions, we shall soon be in a position to have it made so.

That it takes the form of a "set-piece" is admitted, but we must learn to walk before we can run. The great thing is to make a start. Improvements can be made as we gain experience.

Lieut.-General von Rohne, a well-known German military writer, in discussing the field gun of the future,³ considers that it should be designed specially to meet our tactical requirements. The question

³ Translation by Colonel R. M. B. Kelly, C.B., D.S.O., in the *Journal of the Royal Artillery* for March.

he propounds is, "How can the artillery of the attack effectively prepare for the infantry attack on field fortifications?" The answer he suggests is, "The artillery and infantry should engage the same target, not in succession but simultaneously, and the artillery support must be maintained till the infantry gain the position."

One of the main obstacles to surmount is, how this support is to be maintained when the infantry approach close to the point of attack.

The more reliable and accurate our fuses are, always supposing them to be accurately set, the stronger will be the support given by the guns to the infantry. Supposing us to possess a fuse that could be set with absolute accuracy to very fine divisions, much of the danger would disappear from supporting fire. If full value is to be got out of shell support, the infantry officer must have a much closer acquaintance with the behaviour of a shell in the air than is at present the case; and the more reliable their behaviour can be made, the more confidence will be felt in the close support of infantry by means of its agency.

To summarise: the advantages claimed are that the demonstration contains sufficient realism to make all concerned feel the real responsibility which rests on them, and also that it forms an improving study of the practical possibilities of a combination of the two arms.

So far as I know, the combination of shell and rifle fire could only be conducted in the United Kingdom on artillery ranges. General Percin recommends the formation of classes of instruction, the director of which shall be an *infantry officer* who has had placed at his disposal a considerable force of the two arms. These classes to be held at the head artillery practice camp for the purpose, and to consist of officers of the infantry and cavalry—the study of practical fire problems being their chief object.

In Egypt, South Africa, and India, where there is no difficulty about ground, combined firing in the form I am now advocating is sometimes carried out, and the custom could be more systematized and extended.

In India each divisional general can retain 30 rounds of a battery's annual ammunition allowance for his own special purpose. If this amount were allotted to the instruction of the infantry and expended in a programme drawn up by the infantry brigadier, a considerable advance would be possible. At present those rounds either lapse to the artillery and are expended by them at their camps, or they are, in some cases, wasted at combined field firing in the manner I have described. A special annual allotment of 30 rounds to each brigade commander to be utilized for the instruction of his infantry in the best manner he can devise seems the best solution. Let infantry officers learn in a practical manner what they can and what they *cannot* expect from their artillery.

A useful experiment for the infantry would be to try, from observations sent back from their firing line, to change the objective of the artillery from one which was doing their own infantry no harm, and on which they had directed their fire to one that was seriously interfering with their advance and was not being fired at.

Researches of this description, initiated by the infantry with a view to satisfying their own special wants in the matter of support, would go far towards a better understanding between the two arms.

PART IV.

THE ADVANTAGES CLAIMED FOR THE SUGGESTED DEMONSTRATION.

The theorist has well-nigh exhausted his powers on the subject of the combination of these two arms. It is now the turn of the practical soldier to make his attempt.

What is proposed does not claim to be the final solution of a very difficult tactical problem. The great unknown will not be revealed clear and determined. It is merely the assertion of the value of a certain product which may help us in our search for the elusive X.

Certain advantages are, however, claimed for what has been described as a practical demonstration. The best form of minor tactical exercise is one which has been designed with a special object, to teach a particular lesson. If at the end of a day's work you feel that all has been colourless and that the operations have ended in merely giving exercise to the troops, then they have been a failure and time has probably been wasted.

On the extensive battlefields of to-day it may frequently happen that a unit commander may have to command a mixed force. On whether he can do this in a really artistic manner depends not only the diminution in the losses of his force, but even, perhaps, the ultimate success or failure of the whole undertaking. There are certain branches of command that can be acquired by practice, system, and observation. We can all recognize the difference between a well-handled supporting artillery which has the single object in view of supporting its infantry by firing at the right place at the right time, and one whose support is wanting in fixity of purpose, is nerveless and hesitating.

In conducting the operations described in Part III, the brigadier feels the whole weight of responsibility resting on his shoulders, as any carelessness in the proceedings may lead to serious results. He is acting, perhaps, for the first time in a situation in which he can see and control combined shell and rifle fire. He learns how far and where his infantry may venture in front of guns in action in perfect safety, and where the danger zone actually begins. He has before him, at close quarters, a practical demonstration of what the modern quick-firing gun can accomplish when placed in a very

favourable situation. He feels or ought to feel how much depends on his skill as a commander, and whether the resultant value of the twin forces he controls is to be a maximum one. He can form his own opinion as to whether the possibility of causing a few casualties to his own troops is not more than compensated for by the many lives that will be saved by an experienced and boldly employed artillery closely supporting their infantry in the attack.

We now turn to the officer commanding guns. What has he learnt? He learns, in the first place, that in taking up a position for supporting infantry he must not seek for the perfect ones, which used to be described at such length in our old text-books, but remembers that the effective support of the infantry is the first consideration in choosing a position for his guns. His fire is about to be utilized for the attainment of a tactical object. He is no longer employed in merely demolishing a row of targets. He will probably have his nerve rather tried by having to fire at a target to which a mass of infantry appears to be in dangerous proximity. If artillery are to give their best support to infantry, this is a most important experience for their commander. The nearer the infantry approach to the position, the more they will need the support of their guns. If, therefore, the artillery commander is inexperienced in this category of his duties, he will be influenced by the belief that his shells are falling among his own infantry, and will cease firing too soon. Lack of knowledge of his art will then lead to unnecessary losses. Where else can he gain this experience? Not at his own practice camps, and certainly not at manœuvres.

And what about the officers and rank and file? Has their time been wasted?

Under the old system of combined field firing the part played by the artillery, so far as the infantry were concerned, was little better than a display of fireworks. They merely witnessed the demolition of a very easy target at a moderate range.

All can comprehend the enormous advantage of being brought as near as possible to the actual assaulting distance under the covering fire of well-served guns, and also the importance of quickly following up the *rafales* of their own artillery, not breaking forth at random but controlled with set purpose by the leader of the whole attacking force.

They will begin to feel themselves part and parcel with the guns, and will in time not hesitate to inform the latter where they are misdirecting their fire during an attack.

I have always found that the infantry take a keen interest and pleasure in exercises of this description, the objects of which I have always carefully explained beforehand to the assembled officers and N.C.O's.

International military literature of the present day indicates,
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if it does not clearly state, that in all the great armies of the world a common experience has been arrived at, viz., the difficulty in giving a thoroughly suitable training to the officer who has passed from the command of a unit to that of a force in which the three arms (or, at any rate, two) are combined. This rung of the promotion ladder is one of the hardest to surmount successfully, and those who have reached the higher step have increased their responsibilities as leaders in the field to an extent that is not always recognized. The tendency of modern tactics is still more to increase this responsibility. Few officers promoted from the command of an infantry unit have anything but a purely theoretical knowledge of the action of cavalry and artillery. The promoted commanders of units of the two auxiliary arms are in a still worse position.

Speaking of the French Army, General Percin says:—

“Owing, perhaps to the professional assurance given to artillery Officers at the Ecole Polytechnique, or, perhaps, to a not unnatural diffidence begotten by ignorance of certain technical matters, infantry officers in France do not readily interfere with their comrades of the sister arm. Even divisional generals, who are generally infantry officers, fail to exercise that control over the training of their batteries which they should. This is the result of a system of training by which officers of other arms have to attain the rank of divisional general before they study artillery problems. This is very wrong, and the more so when we consider how often on the extensive modern battlefield a brigadier or an infantry colonel may have to command a mixed force.”

The personal leadership of large bodies on the field of battle is a thing of the past, if, indeed, it ever existed to the extent that history would have us believe. A battle once commenced will often be decided solely by the combined efforts of the component parts of the Army. In these conflicts the sharp-pointed rapier, directed by a mobile wrist and manipulated by deft, well-trained fingers, will deal a quick succession of thrusts, more deadly than the ponderous blows of the old battleaxe wielded by a slow moving and comparatively clumsy arm.

Our Army, compared with the national levies of Europe, is small, and we cannot afford to waste the advantages which it possesses. To combine in the battle groups of the future the musketry skill of our infantry with the accurate shooting of our artillery under the leadership of subordinate commanders who, confident in their own skill, will instil into all under them that offensive spirit which goes far towards success in war, is an ambition well worth the attention of us all.

XIII.

OUR FAILINGS IN "OUTPOST DUTIES."

By BRIGADIER-GENERAL F. C. CARTER, C.B., late Commanding
16th Infantry Brigade.

IN my paper on "Our Failings in the Assault,"¹ I commenced by writing as follows: "There are two items in our infantry training that I think require a great deal more consideration, more practice, and more methodical and drill-like teaching. These are—

- (1) The Assault.
- (2) Outposts."

Having dealt with (1), I have now been asked to make a few remarks on (2).

The two main causes for our failings in outpost duties are, I think:—

- (i) The lack of detail as to the "drill" and "rudiments" of outpost duty in our Field Service Regulations and Training Manuals.
- (ii) A consequent want of knowledge, and inability to ground young soldiers properly in this "drill" and these "rudiments" on the part of company instructors, and also, I fear, a general want of method and enthusiasm as to the service of "protection when at rest" during company and battalion training.

As regards (i): I have come to the conclusion that the elimination from our Field Service Regulations and Training Manuals of all "drill" of outposts and precise details of the various and essential minutiae connected therewith, has had, especially in recent years, a bad and retrograde effect in the training of our troops in this most important service of protection.

Some of these details, now eliminated, were to be found in Combined Training, 1905 (*vide* Section 84 of that book), but even these were, I think, insufficient for the elementary training of recruits in the "rudiments" of outpost duty.

¹ In the July number of this REVIEW.

In our present Cavalry, Artillery, and Infantry Training Manuals, outposts are not mentioned save for a few remarks concerning piquets in mountain warfare to be found in Infantry Training, Section 159, and the paragraph in Section 171 (6), where it is laid down that "Every private should be posted as Sentry, and the section should be exercised in the rudiments of outpost work."

This is excellent ruling as far as it goes, but the young officer and N.C.O. requires some authority as to what these "rudiments" are, and how they are to be systematically and uniformly taught. This he has not got. Useful principles and some details, but insufficient, are, I admit, to be found in the Field Service Pocket Book, but this is, I maintain, not a text-book for training, but merely an active service "Vade Mecum."

For elementary instruction in the rudiments of outpost duty, something more than the mere principles and the somewhat meagre details given in Field Service Regulations is required to assist our young officers and N.C.O's. in their early training as instructors. Elementary instruction in, for example, the actual telling off of a piquet—full details as to the various duties of all its component parts, *the proper arrangement of them and how to set about it*—is, I think, very necessary. Officers and N.C.O's. should, I am of opinion, be able to find all these rules and guides in their training manuals. They are, however, not there to find.

The result is that our training in outpost duties is neither uniform nor good. Unless a recruit is uniformly and correctly trained up in the way he should go, when he is young, this training will not, as it should, become to him a "second nature" when he is an old soldier. It was Solomon who said: "Train up a child in the way he should go, and when he is old he will not depart from it." The sage's words are very apposite to recruits and trained soldiers.

As things are at present many officers and a few N.C.O's. are well acquainted with these essential minutiae of outpost duty, but in a decade or so, when they will have disappeared from their units, our existing manuals of training will not, I think, be complete enough to ensure proper and uniform training of all ranks in the most important details of outpost work.

I do not by any means advocate "dry nursing" our company commanders, nor that we should ape the long discarded evil of "forms of attack" by now evolving a stereotyped "form of outpost duties." On the other hand, I do not think we wish, nor that it is desirable, to allow quite as much latitude to our officer instructors as do our friends of the *entente cordiale*. There is a happy mean to be found, and that mean is the inclusion in our Infantry Training and in the training manuals of the other arms, of more definite and detailed instructions as to these *rudiments* of outpost duties.

As regards (ii): For the last six years, as a brigadier, I have been

watching battalions and companies at training on outpost duties, and it has struck me very forcibly, particularly during the last three years, that the elementary and individual part of the work is greatly neglected *because it is unknown to many junior officers and N.C.O's.* There seems to be a want of uniformity, system, and method as regards instruction in the "drill" of outpost duty, in the telling off of piquets, in the arranging of reliefs, and in many little details connected with the duty of protection generally, and *nowadays we have no chapter and verse on these points to impress on instructors and instructed alike.*

I will give a few examples of what I mean :—

- (a) I have sometimes found, watching, for the first time, companies at their training, that the Outpost Company has never been properly "told off," nor the piquet apportioned out to its various duties. Details such as hewers of wood, drawers of water, diggers of latrine and refuse pits, cooks, orderlies, &c., have been either neglected or arranged for in a very perfunctory manner.
- (b) That the various reliefs required are not so placed that when one moves off to its work it does not disturb the repose of the remainder.

Over and over again I have found all the reconnoitring patrols of all three reliefs placed together, and the same with sentries over the piquet, orderlies, &c. The result is that everyone is constantly disturbed throughout the night.

Even when the various reliefs have been correctly told off together with all their component parts, I have frequently found that the three reliefs and the remainder of the piquet are resting merely a yard or so from each other, which results in their being unnecessarily disturbed by their neighbours. From my experience of four campaigns on the frontiers of India I remember we were always most careful to avoid this, and it should be avoided in peace training also.

- (c) That the strengthening of the piquet post has frequently not been methodically thought out, nor the carrying out of a sound scheme of fortification and screening apportioned to squads.

It is not sufficient for the company commander to say, "Oh, I would strengthen this bank ;" "Dig an entrenchment here ;" "Put up a wire entanglement here ;" "Screen this gap or that approach." What is wanted, especially during company training, is more actual *instruction in detail.*

The position should be thoroughly studied in all its aspects, and exact orders given as to entrenching, improving banks, and making obstacles, even as far as deciding in what field

sods are to be cut, and where ; which railing is to be used for making an obstacle, and *how* it is to be used ; where branches are to be lopped or added ; what stones removed or built up ; the exact measurements of the trench, parapet, or banquette ; what approaches require screening, and with what material and where it is to be found ; and all this to be done so as not to show on the enemy's side that any work has been carried out.

Even if the actual work cannot be executed because it would entail the destruction of private property, every little item should be considered, and N.C.O's. and men encouraged in small groups to think out ideas, and then discuss them at a small conference with the company commander.

- (d) Reconnaissance by patrols is not, as a rule, carried out at company training in a stealthy a manner as is necessary on service. The art of scouting is still, I fear, somewhat neglected. I am well aware that I have the reputation of being somewhat "exigeant" in this matter of scouting. I think, however, that it is always wise to *aim* at a high standard, and I have seen how this high standard has, by careful and enthusiastic training, been achieved, notably by mounted infantry battalions now in South Africa, the results of which at Army Manœuvres, 1907, especially in connection with advanced guards and outpost duties, were invaluable to me as the commander of the Southern Force.

From what I have heard from others, and from what I have seen myself, I am afraid this high standard is the exception and not the rule.

Eyes and ears on outpost duty are not trained as they should be, and this is, more often than not, due to the fact that the enemy is entirely "imaginary," whereas a couple of good N.C.O's. and a few old soldiers acting as the enemy's scouts would do much to make reconnaissance and reports, during company training, more instructive.

- (e) "To see without being seen is one of the first principles of outpost duty," and although this is still printed in thick type in Field Service Regulations, Part I, 75 (8), it is, I find, very much neglected in practice during company training. The chief faults I notice are that the men of the piquet when not employed are apt to show themselves, or their moving cap-tops, unnecessarily above the bank wall or scrub where they are posted.

When out watching a battalion or a company at training, or inspecting piquets during brigade training, I like to find great difficulty in locating the actual piquet from the

front. The top of a man's head and that not moving, and almost concealed behind a branch or ragged rock, is all I expect to be able to see with careful binocular work. Over and over again I have seen men on piquet leaning over walls, and officers, N.C.O's. and men moving about in a manner that quite gives the show away to the enemy.

In the same manner N.C.O's. conducting sentries or groups are far too apt to take the shortest way instead of moving under cover of hedgerows, &c. ; and the sentry of a group frequently moves his body and head unnecessarily instead of remaining perfectly still and concealed by a friendly branch, a tree trunk, or a bit of heather placed on the wall or bank in front of him. Any shikari knows full well how the slightest movement may disclose an otherwise excellently selected position.

A spirit of competition and initiative should, to a far greater extent than is customary in our Army, be instilled into all ranks during company training. Maybe the commander will find, in this way, that among his privates he has an embryo colour-sergeant who is blessed with a lively imagination and a real common-sense aptitude for appreciating the requirements of the moment and place.

Questions and answers, problematical situations, various ways of arriving at the desired end, should all be discussed on the spot before the company marches back to barracks. N.C.O's. and men should be formed into groups and should be encouraged to air their opinions and pit them against those of other groups at a small conference under the company commander (*vide* Infantry Training, 170, 3, Clause 2). Encouragement here and there is of far more worth than tons of fault-finding.

The two following maxims for "Training in Field Operations," which are to be found on page 178 of our Infantry Training, should be writ large in letters of gold, that all who train or are trained may read :—

(1) Deal gently with "misplaced initiative."

(2) Firmly repress and censure "misplaced inaction."

Battalions vary enormously, I find, as regards their outpost work, and as during my six years as a brigadier I have had 14 under my command, I have had an opportunity of judging. Some are very good, others not good enough, while a few are appallingly bad. The good ones I find are working on sound principles with sound detail work, which have their source in the instructions received from some up-to-date generals and commanding officers they have served under in the past, and in the brains of their present commanding officers and senior company commanders, who were originally inoculated with these ideas in their earlier days when "Infantry Drill" and 'Combined Training' were their bibles, from which they gathered

many important essentials which no longer appear in Field Service Regulations, Part I, and which, in my opinion, should now, *with still more amplification as to detail*, find a place in Infantry Training and the training manuals of other arms.

Some battalions lay great stress on outpost duty, others somewhat neglect it. A very able soldier friend of mine once remarked that "Nine-tenths of our duties in war are connected with protection." I think the numerator of this fraction is, perhaps, a bit exaggerated, but, nevertheless, I am strongly of opinion that, generally speaking, our infantry should practise outpost duties at least three times as much as they do now.

As a brigadier I have always been greatly averse to interfering in any way with commanding and company officers in their methods of training. I prefer to let them work out their own salvation and judge by results. There have been, however, times when I have been so astounded by the want of knowledge as to drill and detail of an outpost company, displayed by officers and N.C.O's., that I have been obliged to suggest to the commanding officer that he should order his companies to go through the proper telling off of a piquet as a drill, and the posting of groups, the sending out of patrols, the placing of reliefs, &c., in the drill field before they are taken into the country.

I must say the results have always been an improvement all round when they came to working over country, and much confusion and waste of time is thus avoided.

The main principles of outpost work are :—

- (i) To see without being seen.
- (ii) Reconnaissance.
- (iii) Resistance.

Field Service Regulations, Part I, Chapter V, 76 (5), (6), (8).

Company Commanders require to do more than preach this gospel. They must practise it by precept every time they are doing outpost work.

I am afraid that officers often fail to properly appreciate that "company training" is *training* and not manœuvres, nor a mere "outpost scheme." When N.C.O's. or men offend against the principles of outpost duties the company commander should, so long as it does not interfere with nor interrupt the operations in hand, at once check them and make them do the same job all over again in the right way, which is by far the best method of impressing its necessity on them.

Every bit of outpost work should be thoroughly carried out as on service, and every detail connected therewith explained. I am afraid that often during company training these details, *and the repeated instruction in them*, are neglected, the commander being frequently satisfied with taking up positions for piquet and supports,

posting his groups, sending out a patrol or two, and then considering that he has done all that is required of him.

This is not only careless and slack, but it is also most dangerous. Outpost duty, unless taught and practised thoroughly in every little detail, "precept upon precept, line upon line," is a mere parody of "protection," and is but sowing the seeds of "regrettable incidents," the harvest of which is reaped in bloody wars and the tears of a nation.

What is absolutely necessary is a *perfect confidence in the outpost troops*, so that after a long drawn fight or a tiring march,

"When thou liest down, thou shalt not be afraid ;

yea, thou shalt lie down and thy sleep shall be sweet."

I am quite certain that were outpost companies carrying out their duties in war, as I have at times seen them carry them out at company training, I, as commander of the force, would neither lie down nor would my sleep be sweet.

The Japanese are, I think, in this matter of instruction sounder than we are in that they appreciate the fact that one must teach a child to walk ere he can run, and that "rudiments" must be thoroughly learned and understood ere they can be effectively applied. Company Commanders will find many useful hints in a report from which I take the following extracts :—

"The thoroughness of individual instruction appears to me one of the most important points in the training of the Japanese Army. Instead of frequently carrying out ambitious schemes, in which it is difficult to see or to criticise the conduct of the individual, the training of the Japanese soldier consists to a great extent in practical illustrations of situations which may arise in the field.

"In training the company in outpost duties after a thorough theoretical instruction, general and individual, much time is devoted to practising on the parade ground, or elsewhere in the neighbourhood of barracks, particular phases of outpost duties. Thus two or three groups are posted close together representing groups in an outpost line. The remainder of the men observe the work carried out by the men posted as sentries, and two or three men, under the instruction of the officer commanding the parade, represent hostile patrols, scouts attempting to pass the line, messengers bringing in reports from friendly patrols, &c. After the particular exercise has been carried out, the men who were taking part in it are called on to explain why they followed the particular course which they did ; and the others observing are made to criticise, point out mistakes, &c. If mistakes have been made other men are made to repeat the same exercise again and again. The same principle is

applied to every portion of the soldier's training in field work, thus bringing home to the intelligence of the soldier what course he should pursue in the various situations arising and the reason for it."

Another officer describes the instruction of recruits in outpost duties by night. The following are extracts from his report :—

" All the recruits were formed in one section and constituted the piquet. The piquet was told off and those men who had been detailed for sentry groups, detached posts, and any duty which would not be with the actual piquet, were formed up on one side clear of the piquet. The piquet was organized so that the men of the same relief of sentries, patrols and visiting patrols piled arms by reliefs or by patrols. These were all in one line with intervals between each group of duties. The men available for other duties piled arms in another line about six paces in rear of the arms of the reliefs for sentries and patrols. All this was done with every man present, so that each could see what ought to be done. A sentry group was next posted, and then all were taken to a spot immediately in rear of the groups and shown what ought to be done and what ought not to be done. A patrol was now sent out and the men were shown how the patrol informs the sentry as to where it is going, about how long it is likely to be away, and where it means to return through the sentry line.

" This was followed by posting another group, and everyone moved to this group to see how the patrol returned, how the sentry challenged, and how the patrol commander told the sentry what information had been obtained by the patrol. At the same time the men were shown how a hostile patrol should be received."

From a company commander's point of view, as regards training generally, whether in outpost work or other duties, there are two or three points that are remediable, but which, as things go at present in some commands, do not tend to make company training an altogether easy and satisfactory affair. I will quote three examples, all of which have at various times been brought to my notice by company commanders and their commanding officers :—

- (a) On Home Service, when a company goes out to do its annual training barely 40 strong—I have known them weaker still—sound instruction in all the points connected with outpost work is very difficult, and I think it is to be regretted that some superior commanders have not quite grasped this fact, and, in spite of Infantry Training, Part I, 8 (2), have forbidden company training to be carried out by double companies. I am not by any means advocating a four-

company system, but merely the more frequent training together of two companies on *home service*, when the companies are weak.

- (b) More elasticity might, I think, be allowed as to the weekly programmes. I by no means suggest, as some do, the doing away altogether with Army Form B 255, as I think it is most necessary as a check, and moreover it enables superior officers to find the companies and watch them at work.

At present, however, every Thursday or Friday the company commander has to submit in full detail as to time, place, and work, a programme for every day of the following week, which programme is, in most commands, treated after the fashion of the laws of the Medes and Persians, and is never to be altered when once submitted. When I was a company commander, if my day's work, say, on outpost duty, was not a success, I would repeat it day after day until I got it right. Now, owing to the exigencies of the service and a certain amount of official "eye wash," this is impossible.

I am of opinion that so long as the company is training in its proper area, the actual work to be done might well be left to the discretion of the commander to change as he thought fit.

- (c) The third point I gather from company commanders is somewhat of a grievance and a handicap, but one that only affects them at big stations. It is the kaleidoscopic succession of inspecting officers that ride round and too often, alas, insist on having a say in the matter of the day's work. Much valuable time is thus wasted and the continuity of work interfered with. Moreover, at company training a multitude of councillors is not always wisdom, while an "Embarras de richesse" in "Cordons bleus" is apt to spoil the broth!

I was, until I came home three years ago, certainly under the impression that these old-time methods had long since been relegated to the limbo of forgotten things, and eschewed by our rising and risen generals.

Of course I remember well that, in the late nineties, at Aldershot, this constant and daily inspection by advice-giving Superiors was an interminable nuisance, and that it much interfered with and interrupted the training. I can call to mind a certain company commander of those days who got so exasperated with the constant flow of genial but communicative generals and Staff officers, that he spent the whole of one training day in a wood. He had sentries posted on the outskirts to warn him of the approach of any "brass

hats," and although he had seen many wandering on the horizon, he had not been once disturbed all the day. I think I must interpolate here that I by no means approve of this procedure. Still, when the inspection disease is very prevalent prophylactic measures are necessary.

I feel sure that these methods and incidents are, in these latter days, quite the exception and not the rule. I must, however, admit that only two years ago, when I was at a big military station for a few days, I met an old friend of mine returning from a day's company training at outpost duties. He told me he had been visited that morning by the Brigadier-General on the General Staff, the Divisional Commander, the Colonel on the General Staff, the Brigadier and his own Commanding Officer. All arrived at different times, and all, save his own Commanding Officer, took up some little time in advising him how to do his job.

We are all, I think, in favour of general officers commanding and their staff constantly observing how the training is being carried on. Moreover, it is their duty to do so, and the general result is good. I am of opinion, however, that criticisms should, if possible, be deferred, and an opportunity taken later on of mentioning any shortcomings to the brigadier or commanding officer concerned.

There are undoubtedly times when silence is golden, and even we who wear cocked hats should take to heart the wisdom of Solomon as expressed in Proverbs xvii, 27, 28.

I think there is food for thought in the above three grievances of company commanders, and a little more consideration now and then for these hard-working Centurions of ours would so easily remove the causes of irritation.

To sum up, my conclusions are as follows :—

- (i) A little more decentralization, while insisting on uniformity of essentials, is still required. If a company commander is worth his salt he should be left to work out his own salvation and that of his company without undue interference. If he is not, he should be got rid of.
- (ii) Outpost duties should (especially at company training) be practised more frequently than is now usually the custom, and our elementary instruction in these duties should go far more into accuracy and uniformity of minor details than it does now. Young officers, N.C.O's. and men should be thoroughly and systematically grounded in the A B C of every part of outpost drill and detail before they are taken to work an outpost scheme in the country. In fact, in this matter we might with advantage take many hints from the training of the Japanese Army in outpost duties.
- (iii) Our Cavalry, Artillery, and Infantry Training Manuals should contain instructions as to the "drill" of outposts,

and full details as to the *rudiments* of this service. In short, the re-embodiment *and amplification* of many of the paragraphs that were included in "Combined Training" concerning outpost duties should now find a place for instructional purposes in our training manuals, while Field Service Regulations should contain only the general principles regarding the different rôles which a force of all arms will be called upon to play in war.²

² This paper was written by me in May last when I was in command of 16th Infantry Brigade. I have since heard that certain instructions as to the rudiments and drill of outposts are to be re-embodied in the next edition of F.S. Regulations. I am glad to hear this, though I think the Training Manuals are more suitable books for these rudimentary details than our Field Service Regulations.—F. C. C., 12th August, 1912.

XIV.

ARTILLERY TACTICS.

THE "OPEN" AND "COVERED" POSITIONS DISCUSSED AS THEY AFFECT THE OTHER ARMS, AND THE NECESSITY FOR FULLER CRITICISM OF ARTILLERY TACTICS IN THE FIELD.

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INTRODUCTORY.

IN writing this paper I have endeavoured to bear in mind that an academic discussion does little good, and that what is required, after going fully into the matter, are definite propositions which can be taken or left or modified by those who are qualified to judge from the widest point of view.

I have, therefore, put forward definite proposals after discussing a subject which is not new, in the hope that these will fulfil what I have suggested above.

THE OPEN AND COVERED POSITIONS.

On studying Field Artillery Training I think the impression taken away is that concealment (the covered position) is advocated normally, but several notes of warning are given. Thus in para. 147, page 223, under "Concealment":—"The power of delivering effective fire from such (concealed) positions is moreover limited. Rapid movement or very fleeting opportunities are difficult to deal with. Distant observing stations involving the passage of orders by mechanical means increase the difficulty. The amount of dead ground which can be left in front of the guns may also be a matter of serious concern." And again in para. 154 (6), page 238:—"Artillery as at present equipped has certain limitations as regards dealing with rapid movement from under cover, such as might be the case if a counter-attack was made unexpectedly, *and must reach the crest* to develop the full effect of its fire against such targets."

Several writers and advocates of the covered position get out of the difficulty by stating that at certain periods guns must be run up

to the crest ; but my contention is that this is practically impossible. There are only two ways of doing it—one is by bringing a mass of horses fully into view for several minutes, and the other is by running up by hand, which means at least double detachments pulling on drag ropes out in front of the gun, and then on to the wagon, and this at the time when the enemy, even if they have not already discovered the battery's position, are on the look-out to prevent hostile artillery engaging their infantry. In the two sub-paragraphs in which Field Artillery Training faces the possibility of guns having to be moved on to the crest into "open positions" during an action, it refers back to Section 147 (4) for a guide to conduct under such circumstances. After explaining how not to do it, this section states:—"When deployed, rapid movement over open ground exposed to fire for a short distance is accompanied by but slight risk ; or when the enemy is fully occupied elsewhere, movements may become possible which would have no reasonable chance of succeeding if the enemy was on the look out for them."

One cannot but agree with both these statements, but as regards the first it is necessary, before bringing the guns into action, to halt them, to unlimber, and get the limbers away, to bring up the wagons, unhook them, and get them away. As regards the second, the time that this movement has to take place is really fixed by the enemy's action rather than by ours, and it does not seem likely that his artillery's attention would be "fully occupied elsewhere" at this critical period

In making our own preliminary arrangements it is best always to expect the worst instead of the most advantageous conditions. In the "open position," when an unexpected and rapidly moving target appears, the first round from the initial order should be got off in 10 seconds, and effective fire established in well under a minute. If in the "covered position," the first round from the initial order might easily take three or four minutes, and—this is the crux of the matter—effective fire never be established at all. One is compelled to put this as a possible, even a probable, result of the covered position after having had practical experience of the difficulties to be contended with, having seen scores of batteries fail at the practice camp target, which represent the infantry rushes or cavalry or artillery on the move, and after having seen during the last few years nearly 100,000 rounds fired and discussed the matter with officers of great experience. One cannot but also contrast the rapid and excellent effect that is obtained against such targets from the open position.

Immunity from fire is a strong argument in favour of the covered position, but the first duty of the artillery is to help on their infantry at every phase of an engagement, especially the unexpected. If immunity from fire can be obtained, and this object also attained, well and good, but I have the gravest doubts that the two can go together.

It must be clearly understood that I am now talking of moving targets only. Nearly all the difficulties of the covered position disappear when the target is a stationary one, and remains stationary for some time. A few minutes are lost in getting to "effective fire," no doubt, but against such targets this is of comparative unimportance.

If we accept these statements, then, that fire from covered positions is, in most cases, ineffective against moving targets, but effective against stationary targets, we must, in handling our artillery, differentiate considerably between attack and defence.

If we are occupying a defensive position and the enemy is attacking, there must be constant movement of troops going on before the enemy can close with us. If we are attacking there would be many more stationary targets to deal with. Therefore, in the defence more batteries should be in open positions than in the attack, but in both cases some guns in open positions appear to be a necessity. One is inclined, perhaps, here to remember the phrase used in answering examination papers when one did not quite know what to say and to sum up by saying :—"The proportion of guns to be used in open positions and covered positions must depend on the nature of the ground and the tactical situation." Without wishing to suggest a hard and fast rule, I go so far as to say that in the defence very often one-third of the guns should be in open positions, and, moreover, that a commander in a defensive action will run the gravest chance of disaster if he has all his guns in covered positions.

Field Artillery Training does not differentiate much between the attack and defence as regards the open and covered positions. Indeed, considering the defence, it says that :—"At the commencement of the action it is advisable that the artillery should be concealed as much as possible." But goes on : "If the intricacies of the ground make such a course desirable, it is permissible to post guns in direct fire positions for the close defence of a locality, and to reserve the fire of these guns for the crisis of the fight. If this is done great care should be taken to conceal the emplacements."

The "direct fire position" is not defined in Field Artillery Training, the three positions that a battery may occupy being defined on page 282 as :—

- (1) Open position.
- (2) Semi-covered position.
- (3) Covered position.

But undoubtedly by the "direct fire position" is meant the "open position." It seems a pity that the former term has crept in.

The reconnoitring for the "open positions" as suggested in the defence must be very carefully done, background and surroundings being very fully considered. The edges of woods, hedges with holes cut for the muzzles, gorse bushes, or anything that breaks the outline of the shield of the gun and wagon limber should be utilized. If

background and surroundings blend with the colour of the equipment and no movement is allowed, guns may be exceedingly hard to discover until they open fire, and I suggest that more importance be given to this form of reconnaissance. It goes without saying that, if time admits, the personnel should be entrenched. The rôle of these batteries should be to lie absolutely "*perdu*" until their opportunity occurs for obtaining decisive results on moving targets, and they must leave the batteries in concealed positions to deal with stationary targets, and especially to engage the enemy's artillery. From our experience I do not believe it would be worth while for the enemy's artillery to try and obtain direct hits if the guns were discovered, and I should let them spatter the material with bullets while the detachments were "gone to ground." Batteries well placed would also be very hard to hit with H.E. shell.

When the occasion arrives for action these batteries will, no doubt, be subjected to a heavy fire; but, if available, concealed batteries should invariably be told off to engage the enemy's artillery and try to subdue or moderate his fire, thus leaving the "open" batteries to obtain decisive results.

I must humbly differ here from Field Artillery Training, which says:—" . . . Batteries exposed to view will usually be compelled to enter into an artillery engagement for their own protection, in which they will start at a disadvantage."

I would suggest that, beyond lying under cover until the opportunity arrives, their own protection must not be the primary consideration, nor can I think they would attain it by entering into an artillery duel. In these defensive positions the batteries in open positions should have large supplies of ammunition in their entrenchments, for they will be anchored to their positions until the enemy is defeated, or the arrival of darkness, and this grave disadvantage has to be realized and faced.

The French Artillery fully realize the difficulties of dead ground in the defence, see the article on the "French Field Artillery" in the April number of *THE ARMY REVIEW*. Under "Artillery in the Defence," one reads:—"One of the most difficult problems is how to bring artillery fire to bear on the dead ground in front of the position when the enemy have reached it." With us this dead ground may be up to 3,000 yards from the position if we keep all our batteries under cover. The article goes on:—"Several alternatives are suggested. . . . (4) The best plan of all it is considered, when it can be done, will be to place a battery or two, or even portions of a battery, in positions whence they can flank the approaches and the dead ground. These guns will be concealed from the enemy's view as long as possible, and themselves protected in flank by natural or artificial cover. Their action will be most effective at the critical moment of the attack."

The Japanese have, I believe, in their training almost abandoned the covered position, which leads one to suppose they realize that immunity from fire is not considered if their own infantry are to suffer by it.

So far the defence only has been dealt with. In the attack also there is a necessity for some guns to be in open positions, though a smaller proportion than in the defence, if the infantry is to be properly supported, sudden counter-attacks brought under rapid and accurate fire, and movements of supports and reserves hindered. Field Artillery Training, in Section 154 (6), recognizes this, as in speaking of counter-attacks in the second phase of the attack it says:—"Artillery . . . must reach the crest to develop the full effect of its fire against such targets." It also lays down that for a forward movement to be carried out during this phase, certain conditions are necessary:—

- (i) A line of advance that is either protected from fire or over which guns can move deployed and at speed, so as to avoid the risk of columns of guns and wagons being brought to standstill under fire.
- (ii) The possibility of reasonable protection from fire during deployment and up to the moment of opening fire.

It then advocates dribbling a few guns forward at a time, supported by the fire of those in action. The greatest difficulty is not really in getting the guns forward when they can move rapidly and deploy, but getting them into action on the position. If this is done in dribbles the guns are liable to be overwhelmed in detail. It would seem that the forward movement may be done in dribbles, but the coming into action should be simultaneous, supposing cover to be available to collect behind, and covering fire from other guns is available. There is no doubt that during this phase some of the guns must take heavy risks, which can only be minimized by careful previous reconnaissance, and not leaving the choice of the route to be followed and the positions to be occupied until the last moment.

It may be urged that this is not a propitious moment for advocating the open position, as the introduction of the panoramic sight will do away with many of the difficulties of engaging moving targets from the covered position; but it will not, alas, do away with dead ground and having to run guns up to the crest, nor will it do away with that gunner's bugbear, "the angle of sight," and the opening paragraph of the Memorandum of Training of the Royal Horse and Royal Field Artillery, issued on the 31st January 1912, points out that neither will it do away with the difficulty of parallelism of lines of fire.

During the last two seasons' training, during divisional and larger manœuvres, much the same sort of thing has happened to me as a battery commander, and I think it would be instructive if I gave an example.

The division to which my battery belonged had taken up a defensive position, occupied the night before, and entrenched. The attack next morning developed strongly on our left front, and eventually troops from the right were sent to reinforce the left. While these were on the move the enemy launched an attack on our extreme right, consisting, as far as I was able afterwards to discover, of a cavalry regiment, a battery of horse artillery, and half a battalion of infantry. The ground on our right front was wooded to within about 1,200 yards of our position.

It is with the artillery of the defence that I wish now to deal, or rather more particularly with that part of it to which I belonged. Most of the artillery was placed on the left, as more commanding positions existed on that flank; but one brigade was in position "dispersed" on the right, all the guns under cover. Personally I was some 500 yards in front of my battery, communication being by telephone and flag. Though I could see the large masses of cavalry through the edge of the fringe of trees and the horse artillery trotting into action, I could not get a round off until the cavalry were dismounted, the guns in action, and the attack fairly launched, and my battery was the first battery to get a round off at this attack, now within 1,000 yards of our position. The other two batteries, far nearer to the enemy than my battery, could not clear the crest without running their guns up, and consequently could not fire a round at this menacing attack, which was carried out with great dash and rapidity.

It may be suggested that the guns on the extreme left should have taken on this target; but they were fully engaged in their front, and for them to have engaged a target at this angle would have meant heavy running up and exposure of their flank to the enemy's fire.

I should like here to quote a foot-note on page 223 of the *Field Artillery Training, 1912*:—"Supposing that guns and target are on the same level, then to guns 60 yards in rear of a crest and 16 feet below it all ground is dead within 4,000 yards; if 9 feet below it all ground is dead within 2,000 yards; if 3 feet below it all ground is dead within 1,000 yards" (13 feet is necessary under normal conditions to conceal the flash of the guns).

It is clear also that if the target is infantry, they are usually below the level of the guns, and the dead ground is consequently increased in extent.

I think it is most important, not alone for gunners but for officers who have artillery under their command, to realize fully the limitations of the covered position.

Nor is it sufficient, I suggest, for a commander of a mixed force to issue orders to his artillery to be in the neighbourhood of such and such localities, but rather in his reconnaissance with his artillery commander to give definite instructions to the latter as

to what portions of ground he considers should be swept by an artillery fire which can be rapidly opened and rapidly and accurately maintained. The areas thus designated would be such as he considers would be most advantageous to the enemy if occupied, or from which a flank could be threatened or a counter-attack launched, or which offer special difficulties to his own infantry to defend.

ARTILLERY CRITICISM.

Even the most optimistic gunner cannot imagine that the tactical handling of artillery is always perfect and above criticism. Yet, as far as criticism of the handling of artillery goes, one might as a gunner get that idea, because, as far as I know, there exists at present an absolute lack of criticism. The inherent difficulty is borne out by the fact that the instructions issued on the training of the year give criticisms on cavalry, yeomanry, infantry, Army Service Corps, Royal Army Medical Corps, but none on artillery. The Memorandum of the Training of Royal Horse, Royal Field, and Heavy Artillery is issued in a separate report, which reviews the "progress of gunnery training" only, and is purely technical.

During last training season, where most thorough criticism was heard on the other arms, silence was almost invariably maintained as to the handling of the artillery. Yet one knows as an artillery regimental officer that guns were occasionally caught in most unfavourable situations, that counter-attacks were not supported, and that the enemy's unexpected attacks were not brought under fire until these attacks had progressed so far that they would have probably been successful.

UMPIRES.

One of the difficulties we labour under is, I venture to suggest, that though very full, clear, and carefully thought-out regulations have been published to guide officers acting as umpires with the infantry, no such instructions exist for artillery umpires, and it has become the custom practically to ignore the artillery umpire. Certainly during the last two training seasons I have never heard an artillery umpire questioned nor have been questioned myself when acting in that capacity. The regulations for infantry umpires have made the greatest possible difference in making the operations of the infantry more realistic and more capable of being fully criticized.

It has always been the custom to tell off artillery officers only to act as artillery umpires, but I would suggest that what is required is a "tactical" and not a "technical" umpire. There is practically no technical criticism that an artillery officer can give when batteries are firing blank, and what is wanted are facts that go to show how the artillery has supported the other arms.

Artillery officers should and do learn a lot when umpiring with infantry, and I venture to think that infantry officers would learn a great deal about artillery if they acted as umpires with that arm. The best method of suggesting what sort of information an umpire with artillery should give is, I think, to give an example of what an umpire's notes might contain. It is needless to say that the umpire should be very much on the alert, and watch and follow the general tactical situation closely. His notes might read :—

9.30 a.m.—Advanced from —.

9.40 a.m.—Enemy's artillery opened. Battery commander advanced rapidly in line to a covered position near—.

10.15 a.m.—Opened fire on enemy's guns near —.

11 a.m.—Enemy's infantry within 3,000 yards of position ; strong attack developed on our right. Battery commander ordered to engage it. Found shell could not clear the crest. Commenced to run guns up by hand. This took 30 minutes.

11.30 a.m.—First round at attacking infantry fired, now about 2,000 yards from position occupying rough ground. The battery while running up was under artillery fire.

And so on. Everything that might have importance on the tactical situation should be noted concisely, and from such reports the commander of the force might get a fair idea as to whether his infantry had been supported properly or not during the engagement.

It would probably be as well for a senior officer to be in charge of the artillery umpires, whose duty it would be to sift their reports, and he should be able at the conference to tell the commander if such and such an attack was properly supported ; how long it took to bring fire on a counter-attack and if only batteries in covered positions engaged it ; what caused the long delay in engaging some other target, &c., &c.

It must be bad for any arm to be free from criticism, and it should not be thought that artillery may only be criticized by officers of their own arm, the object of criticism being that the best instruction may be obtained, and to help on that combination of the three arms, which must be developed to ensure success.

All I urge is that the " open position " should receive more attention than it does at present in the tactical handling of artillery, and that a more systematic system of criticizing the tactics of artillery with relation to the help and support they give, or do not give at present, to the other arms, should be devised.

At the many lectures one has attended, in the many writings on tactics, co-operation is never forgotten ; but if one has a grain of imagination on field days and manœuvres and tries to picture what would really happen in the stress of real battle, one cannot but realize that true co-operation has advanced far more in theory than in practice.

XV.

TWO PHASES IN ARTILLERY CO-OPERATION.

By COLONEL D. G. PRINSEP, R.A., C.R.A., South Midland Division.

CO-OPERATION! What is co-operation? A glance at Webster's Dictionary tells us that it is "the act of operating together to one end," "joint operation," "concurrent effort." This being so, all arms are co-operating day and night to the one great end of war, and therefore it seems unnecessary to emphasize the word in minor tactical operations, when from the broader point of view co-operation is perpetually going on.

The word required seems to be lacking to designate the moral and material support and encouragement given by the sister arm to the infantry when "at grips" with the foe. Rather does "fire support" and "close fire support" convey to the mind what is actually required of artillery when actively assisting in the great military co-operation of all the details of an army. Be it as it may, it is idle to descant on the appropriateness or otherwise of a word. What is of more importance is the consideration of how best to assist the infantry to achieve their task.

Let us first consider the broad view of the function of the Divisional Artillery. It is in the hands of the Divisional Commander, through the Commander of the Royal Artillery, for the great purpose of facilitating the advance of his infantry, and consequent defeat of the enemy, by the amount of damage it can do to the latter and assistance it can give to the former. Hence it follows that the greatest possible intercommunication must exist between the two arms in order that every movement of the infantry may be rendered easier for them by the fire of the artillery against their obstacles, human or otherwise. This is clearly enunciated in Field Service Regulations, Section 105 (3), and also in Field Artillery Training, Section 150; the former states that the infantry advance should be assisted by fire on the most important target, while the latter deals with the various methods of securing an effective intercommunication between the infantry and the artillery detailed for its close fire support. It is with this communication between infantry and artillery that this paper essays to deal.

Now for the artillery to be effective in action it is necessary that :—

- (1) It must know something of the ground which it is to occupy.
- (2) It must be continually kept informed of the objectives of its own infantry.
- (3) It must know the general dispositions of the enemy and of its own troops.
- (4) It must be informed, as far as is desirable, of the intentions of the General Officer Commanding.

As regards (1), a rapid reconnaissance is the only means of obtaining the required information. For (2), a close communication with the infantry commanders is essential. (3) can be acquired partly by the reconnaissance in (1), and partly by information derived from (2), and is also referred to in Field Service Regulations, Section 98, and Infantry Training, 1911, Sections 127 and 149 (2), though it would seem advisable to include mention of the artillery co-operating with the infantry in Infantry Training as regards this transmission of information. (4) can be given to the Commander of the Royal Artillery, who will disseminate as much as is desirable to artillery units in accordance with Field Artillery Training, Section 151 (6), and, when more than one tactical operation is involved, will place such portions of the artillery at the disposal of the group commanders as may be ordered.

Much of the information given will be verified visually during the battle.

It is, however, with (1) and (2) that the unit commander will have to deal, on his own initiative as a rule, and there is a great scope for good and useful work in the effective performance of these most necessary duties — *viz.*: reconnaissance and intercommunication. Indeed, the latter duty is most clearly imposed on artillery commanders by the provisions of para. 151 (7), Field Artillery Training, and rightly so.

Taking reconnaissance first :—Field Service Regulations, Section 94 (3), directs that the Commander of the Royal Artillery, or his representative, should take part in the tactical reconnaissance of the General Officer Commanding, and Field Artillery Training, Section 151 (2), legislates for artillery officers' patrols to assist in the Commander of the Royal Artillery's reconnaissance, to be found by the Royal Field Artillery Brigades under the Commander of the Royal Artillery's directions, to collect the information required. These same patrols can be well utilized, in the subsequent stages of the fight, in keeping up close communication with the infantry adjacent to the guns or in the zone of fire allotted to their batteries. For having probably already been once over a good part of the ground, they will have some knowledge of its configuration, and will also have noticed the preliminary movements of their own infantry.

What orders should be given to these officers' patrols? I remember on one occasion the selected officer of a patrol was directed "to advance at early dawn with the cavalry and reconnoitre the country." The result was that a cheery and sporting young subaltern had an enjoyable ride, and was lost to the brigade for the rest of that day. On the other hand, it would not do to tie his hands, or rather his horse's legs, too much, or his initiative might be damped. It seems, therefore, that the simplest solution would be to let them all receive their instructions from the Commander of the Royal Artillery, who would send these patrols to reconnoitre certain definite zones, in accordance with the General Officer Commanding's intentions, and the information should first be transmitted or brought to the Commander of the Royal Artillery, who, after adding any further instructions or comments, would send the patrols back with their information to their Royal Field Artillery Brigades, and the lieutenant-colonels would further disseminate the information to batteries as required or necessary.

It is assumed that the zones reconnoitred would probably be those to be occupied by the Royal Field Artillery Brigades which found the particular patrols, and this allotment of zones to the brigades, and the placing of artillery at the disposal of group commanders when required, will be one of the most important duties of the Commander of the Royal Artillery, *vide* Field Service Regulations, Section 104 (1) and (2). The duties of these officers' patrols are clearly defined in Field Artillery Training, Section 234, and the importance of having the numbers trained to work together is emphasized.

Another reason for having the patrol reconnaissances first brought to the Commander of the Royal Artillery is that possibly, during the reconnaissance, matters may have occurred which would modify the plans of the General Officer Commanding, or a further reconnaissance may seem desirable. But it should be a fundamental principle that patrols reconnoitre the ground their own Royal Field Artillery Brigades will occupy; and they can often be a means of carrying back any orders of the Commander of the Royal Artillery as to occupation of selected positions.

It is not expedient to attach the patrols to cavalry or any other arm for the reconnaissance. They should be given their task and a line beyond which it is probably unwise to go, and left to do their work under cover of the mounted or dismounted advanced troops, beyond which it is unlikely they will be able to go if there is an active and enterprising enemy in front.

Having rejoined their brigades, and the reconnaissance being completed, these patrols now become available for the second phase—*viz.*: intercommunication between their guns and the now advancing infantry, working forward in the zone of fire of their Royal Field Artillery Brigades.

For this constant communication various methods are shadowed

in Section 150 (3), of Field Artillery Training, but there is nothing definite laid down, nor can there be, as the various phases of the battle will probably each demand a different treatment to ensure successful results.

There are many ways in which information may be transmitted—*viz.*: (1) telegraph; (2) telephone; (3) signals; (4) orderly, cycle or mounted; (5) personal investigation. Except (5), the above are also legislated for by the Sections of the Division Signal Company, as laid down in Army Order 309, of November, 1911.

Taking each *seriatim* :—

- (1) The Army Telegraphs and No. 1 Sections of the Divisional Signal Companies will probably have their hands full, transmitting and receiving messages between the General Officer Commanding and the infantry brigadiers, so will scarcely have time to spare to pass information to an artillery brigade even should "tapping in" stations be arranged for. These "tapping in" stations would probably be more used for artillery units to receive orders from superior authority, than for infantry brigadiers to communicate with artillery brigade commanders, so not much can be expected from this source.
- (2) Telephones (by which I mean those in No. 2 Sections of the Division Signal Companies) will be in use between the brigadier and his battalions, and the divisional telegraph line if he is off it; the Royal Field Artillery telephones similarly are for use between the Royal Field Artillery Brigade Commander and his batteries, though there will doubtless be many occasions—*e.g.*, when a Royal Field Artillery Brigade has no dispersed batteries—when it will be possible to extend an artillery line to the infantry brigadier, or at any rate to his end of the divisional telegraph line, or a joint Royal Artillery and infantry line could be improvised with a section of the Division Signal Company. But on an advance of the artillery this method might have to be discontinued, and in the final phases of the fight the line would never have a chance of being re-laid.

If available, however, there is no doubt that the telephone line is the surest and quickest method of intercommunication between the infantry and the Royal Field Artillery, and No. 2 Section of the Division Signal Company as established in Army Order 309 of 1911 should well meet the case, provided it is available for this duty.

- (3) Signals, by flag, or semaphore, or disc, will be used, probably in conjunction with the orderly in (4). Flags are, however, very visible, and signallers singularly negligent in taking cover so as to quite conceal their flags, as well as themselves,

from the enemy. Moreover, messages may be equally well read by friend or foe. However, some amount of signal work is bound to assist in intercommunication, and it rests with those in charge to discriminate as to the use of the signal or the orderly on each occasion.

- (4) Mounted orderlies are a slow but sure way of transmitting information in the shape of written messages, and will usually be employed in conjunction with signallers between the Royal Artillery and the infantry. They may be officers or rank and file, and are, if careful, less likely to attract the enemy's attention than signallers. But their slowness (unavoidable compared with flag or telephone) detracts from their value in the closest support of the infantry; for it is conceivable that a mounted messenger might be going his hardest to get to the guns, with information "that they must now pump in all the iron they can as the infantry are ready to rush in with the bayonet," and yet be too late, as the critical phase may pass and the rush either not come off, or else take place without the artillery fire so ardently desired; though, of course, if the artillery commander has been well informed during the fight, he will be on the look out for such a crisis, and will be prepared accordingly. Cyclist orderlies will be much quicker if the machine does not break down, a matter for speculation as machines are very vulnerable.
- (5) Personal investigation by the artillery unit commander is not a very likely solution, as this officer will have his hands full controlling his artillery and directing its fire and movements and in keeping touch with Divisional Headquarters. Even should he send forward one of his Staff to inquire, he is in no better position than before, as the patrol in front should be in possession of all available information, which naturally would be transmitted as fast as possible. On the whole, therefore, the best solution seems to lie in a judicious use of the officers' patrol with signallers attached; the signals can be used where safe and concealed, and afterwards the men become available as mounted orderlies, and should know where their batteries can be found, having been in signal communication with them. Or, if more convenient, messages could be sent part distance by signal and the remainder by orderly.

This method will, anyhow, be an alternative in case the section of the Division Signal Company fails in establishing good communication.

It is quite possible that no section of the Division Signal Company will be available for this particular duty, intercommunication with

the artillery being only mentioned as an alternative in Army Order 309. Hence the increased value of an artillery officers' patrol.

Now comes the question as to where this patrol should go to for the information. Many places have been suggested, such as: (1) the firing line or supports; (2) the local reserves; (3) the infantry brigadier; (4) an independent position, using personal observation.

As regards (1), it is very unlikely that any information will come back correctly to the artillery from the firing line direct, and any attempt at signalling from there would give the show away at once. Moreover, in the noise and confusion of the fire fight the gunner would only obtain an intensely local impression, and he requires a more comprehensive survey of his zone of the battle in order not to be over-biassed by minor detail, and the difficulties of sending back information would be well-nigh insuperable.

(2) The local reserves will be more or less concealed, but will not know much outside their own immediate front as to what is going on, so the gunner will only get local colour there, though signalling to the artillery would certainly be feasible in most cases.

(3) The infantry brigadier who is directing the movements of his infantry is a much more likely source from which to acquire useful information, and is the place suggested by Field Artillery Training, Section 150 (3), as it is to him that all reports from the front will come in the first instance, and, secondly, the patrol will have much better opportunities of sending news back to the guns, either by signal or orderly or by the Division Signal Company. The brigadier's position also will be one where he can see over the whole of his front, and this officer is a far better judge of what he wants for his infantry in the way of supporting fire from the guns, and he will be much more likely to know when the assault will take place. Indeed, in many cases he will settle it himself, though it is possible that the rush forward from the fire position may originate in the position itself. See Field Service Regulations, Part I, Section 106 (5), and Infantry Training, Section 128 (12). In the latter case all the artillery can do is to be vigilant and prepared for the emergency, as any attempts at signalling or message sending will be too late.

Therefore here seems to be the right place for the gunner officer's patrol, and he can see and digest in his mind the battle, from the same broad point of view as the brigadier, and will be a help to the latter by giving technical information as to how the guns may best be used. He will also probably be in touch with Divisional Headquarters by the wire of No. 1 Section, Division Signal Company, and can at times assist in transmitting messages or orders to the particular Royal Field Artillery unit which he belongs to, provided always that the paramount duty of keeping up intercommunication between the infantry and the supporting artillery is not interfered with. He is here in a position materially and instantly to assist the brigadier

by keeping the artillery informed of probable moves of the infantry and suitable times for an advance of some or all of the guns. He will also be in a good position to observe the effect of the artillery fire, and will therefore be a valuable asset to the battery commanders by forming the advanced observation line mentioned in Field Artillery Training, Section 150 (6).

(4) An independent position, using personal observation, does not commend itself. It is very unlikely that any young gunner officer can know as much or form as good an opinion of what is going on or is about to happen in the firing line as the infantry brigadier, who is vastly more experienced in this particular work; and though the patrol may find an excellent place for observation, it will not be in that close touch with the infantry that is so desirable and so conducive to successful artillery support. It would have to be looked for if wanted, and any immediate and urgent requests for artillery assistance would not be so quickly responded to.

The gunner also has, in addition to the section of the Division Signal Company, his signallers or mounted orderlies for the transmission of the necessary information to the artillery, and gets his data at first-hand from the brigadier, who knows what he wants.

One more question remains to be discussed. What should be the composition and strength of this patrol for (a) reconnaissance, (b) intercommunication?

For (a), a captain or subaltern officer of some seniority would be most suitable, and he must have a horse-holder, a range-taker (one-man instrument), and one or at most two mounted N.C.O's. or men. See Field Artillery Training, Section 234 (2). The less number the better, as they form a smaller group and are less likely to attract attention. The horse-holder might be dispensed with if one of the group does this duty.

The officer will reconnoitre, sketch, and report on the positions, &c., while the range-taker supplies the data as to distances, observation and concealment being the paramount objects in view. They should be picked men, good horsemen and resourceful, as risks will have to be run in gleaning the necessary information, and they must be previously trained to work together.

For (b), the same officer, but in lieu of the range-taker, who can now rejoin his battery, a pair of signallers and horse-holder should be added, and this party of four will be quite sufficient for the close communication between the infantry and the guns. They should be trained in telephone, signal, patrol work, and message writing, and as the best speed may be required of them, they must be well mounted and good horsemen.

The question of mounts is a serious one, and every officer and specialist in a brigade of artillery should be equally as well mounted as are the cavalry, for they will have fast hunter work to do in all

probability, and one cannot expect to get satisfactory despatch riding out of a heavy horse more suited to a gun or wagon team. This type has neither the pace nor the qualities for the work required of it.

It may perhaps be convenient for the artillery brigade commander to send his orderly officer and some of the Royal Field Artillery Brigade Staff on these duties, instead of drawing on batteries. Someone has to go, however, and whether it is better to drain the Brigade Staff or the batteries for the necessary personnel is a question best left to the circumstances of the moment, unless indeed extra numbers are allotted to establishments for the purpose.

At all events these two important duties—*viz.*: reconnaissance and intercommunication—are paramount to an effective artillery support of the infantry in attack, and must be legislated for. And here in the harmonious working of a well-trained whole lies the essence of co-operation, as so called, in the Army of the present.

XVI.

THE TRAINING OF A CYCLIST BATTALION FOR COAST DEFENCE.

By Captain C. F. ADAMS, Royal West Kent Regiment, Adjutant
Kent Cyclist Battalion.

THE main and most important duty entrusted to cyclist battalions in the event of war is the watching of a portion of coast line allotted to them for this purpose, and watched during peace by the Coastguard Service. Their duty will then be to watch and report any movements of hostile vessels within view of their stations, and in the event of a threatened landing to concentrate rapidly and oppose that landing until the arrival of the main army. If the landing has been effected then their duty is to delay the hostile advance by every means available, and to report every movement of the enemy. Cyclists have, therefore, a twofold duty, but it is only with their training for the first phase that this paper is concerned. The paper has, therefore, been divided into headings, under which the training of each component part of a cyclist battalion is entered into.

Personnel.—As the training of a cyclist is of a more advanced and varied nature than that of an infantry man, the greatest care should be exercised by commanding officers and their officers in selecting suitable men for their battalions or companies. This is more especially necessary in that, owing to the smaller establishment of a cyclist battalion as compared with that of an infantry battalion, every N.C.O. and man has a clearly defined task. The ideal cyclist should be of light though muscular build, and be capable of riding without distress at a uniform rate of 10 miles per hour. He should be quick, intelligent, and have good eyesight. Men recruited from coast towns are to be preferred, as they probably have some knowledge of the coast in the neighbourhood of their homes, and also a knowledge of shipping.

Equipment.—At present no two cyclist battalions are similarly equipped. A diversity of opinion exists as to the best method of carrying the rifle. The two methods most generally in use are :—

- (a) A bucket in the bottom fork for the rifle butt, and a clip on the top of the front standard for the fore end.

- (b) A clip on rear right stay under saddle to take small of butt, and a clip on top front standard to take fore end.

Provided that the bucket is fitted with a spring clip and the bottom lined with leather, (a) appears to be the best method, as the muzzle of the rifle is clear of any dust or dirt thrown up by the front wheel, and the rifle can be easily and quickly detached; also the top stay remains clear for attachment of entrenching tool, signalling flags, or lamp tripod. The great coat and canteen (blanket and waterproof sheet in emergency) can be taken on rear carrier, cape on handle-bar.

At present cyclist battalions are provided with bandolier equipment. This is most unsuitable, as pressure is brought on the chest by the bandolier, haversack, and water-bottle. The web equipment would appear excellent for cyclists, as there is no pressure across the chest, and the valise could be carried on the rear carrier.

Distribution.—The method of distribution of a cyclist battalion is to be found in Cyclist Training, Sections 51 and 52, and there is therefore, no necessity to go deeper into this question, as it is laid down very clearly in those sections.

Commanding officers should endeavour to allot each section of coast line to the company that has its headquarters and recruiting area nearest to the given coast defence section. This will enable the men during the summer months to be taken to the coast and obtain a thorough knowledge of their allotted area.

Each company allotted to coast defence should be in possession of every detail of their area that it is possible to obtain, *e.g.* :—

- (i) The extent of coast line to be watched.
- (ii) The exact position of each look-out station and of section headquarters.
- (iii) The telephonic and telegraphic facilities in the area.
- (iv) Particularly favourable landing places.
- (v) The nature of the tides, the currents, and the depth of water along their stretch of coast.
- (vi) The position of look-out stations and section headquarters on their flanks, and means of communication with them.
- (vii) Suitable positions for opposing a landing.
- (viii) A thorough knowledge of the topographical features of the country inland from their coast line.
- (ix) Procedure in case of attack, method of communication, and to whom messages are to be sent, and by what means.

The above are some of the most important points that should be considered by officers commanding companies. Many of these would be supplied on the form (Form C) issued from the battalion headquarters, but the remainder can only be obtained by the personal observation of all ranks during peace training.

Each officer commanding a company should keep a roll of the N.C.O's. and men he intends to detail for the various duties of his section, *e.g.* :—

- (i) Personnel of look-out stations, and their reliefs.
- (ii) Patrols and their reliefs.
- (iii) Sentry and reliefs for section headquarters.
- (iv) Operators for telephones either at look-out stations or section headquarters.
- (v) Accommodation.

These rolls should be carefully kept up-to-date and altered as men become time-expired, &c.

The Distribution Form (Form C), showing the exact distribution of the company on coast defence in the event of mobilization, also the company commanders' method of warning and collecting his company on receipt of the order to mobilize, must be kept under lock and key at the company's headquarters.

Training cyclists.—A Territorial soldier only attends on an average 20 drills per annum, his annual training, and musketry. In this limited period he has to be taught his duties as an infantryman and as a cyclist. The instruction must, therefore, be divided into two periods—indoor and outdoor instruction—the former taking place during the winter months—November to March—and the latter from April to the annual camp. A syllabus of drills for trained men and recruits should be drawn up at the commencement of the training season. These syllabuses, of course, include musketry, drill, and infantry work, besides coast defence duties.

Indoor instruction.—Putting aside the infantry and musketry work, the system of training in the special duties assigned to a cyclist for coast defence work during the winter months as indoor instruction should be as follows :—

- (a) Map reading, more especially a very careful study and explanation of the map of his allotted area.
- (b) Look-out station duties.
- (c) Recognition of shipping.
- (d) Semaphore signalling.

Regarding the carrying out of the above instruction, it is regretted that many officers do not use more common sense in their methods of indoor instruction. It is only by making uninteresting subjects as attractive as possible that the attention of the Territorial soldier can be retained. For example, in (a), with the aid of wet sand or clay, practical demonstrations may be given in map features; the Hill Siftken targets may also be utilized. (b) Can be carried out in the drill-hall, each sentry being given a large scale map or rough enlargement of the country in the immediate vicinity of his post. (c) F. T. Jane's "All the World's Fighting Ships" is invaluable but expensive. A very useful little book which might be in the possession

of all look-out station commanders is Ships and Shipping, by Commander Dowling, R.N. Picture post-cards of various types of warships and mercantile marine may be obtained, or illustrations from daily or weekly papers may be collected and used in conjunction with (b).

By the time the weather is favourable for rides out the men should be well-grounded in the indoor work.

First stage. Outdoor instruction.—In the first stage of the outdoor work the men should be shown the placing of a look-out station, and the posting of sentries on the actual ground, if possible, to and from the coast; they should be questioned on the ground as compared with the map, and *vice versâ*. Particular attention must be paid to march discipline, riding at regular intervals without straggling and without noise. Bursts of quick riding for given distances, and practice at halting and grounding machines. (*Note.*—The practice of piling two machines together should not be permitted, as in the event, of the machines falling the rifles may be damaged, and also a considerable amount of noise is made.)

Second stage.—As soon as the men have mastered the first stage, the following should be proceeded with :—

- (a) Riding without lights to a given rendezvous. This exercise should be carried out on unfrequented roads.
- (b) Posting and relieving look-out stations at night.
- (c) Reinforcements of look-out stations and occupation of suitable positions for the prevention of a hostile landing.
- (d) Practice in patrol work. This should be combined with intercommunication between patrols and their headquarters.
- (e) Hasty entrenching. Ground can usually be found for this purpose in the vicinity of company headquarters.
- (f) Working away from their machines and taking machines across country.

NOTE.—When a company leave their machines it is only necessary to leave one man on guard, except when, owing to the company advancing or retiring, it becomes necessary to move the machines to such a position, either to the front or rear, that the company can mount quickly and take up another position. This may be carried out by a selected N.C.O. and two men being left with the machines. The N.C.O., by careful observation of his company's movements, and from information given him by the officer commanding the company as to his line of advance or retreat, moves the machines six at a time to a more suitable advanced or retired spot, where the company can quickly concentrate and move to another position.

Week-end camps.—Officer commanding companies should be encouraged to get their men to attend week-end camps at some suitable spot within their area. These camps can be arranged with very little trouble, and need entail no expense beyond the allowances to officers (15s.) and men (1s. 6d.) and the cost of carriage of blankets.

The allowance of 1s. 6d. to N.C.O's. and men is quite sufficient for the short period they are out. The blankets can be obtained from the Army Ordnance Department, and warm and sheltered accommodation can always be obtained in a barn with a few trusses of straw. The men should ride to and from their company headquarters, and some simple scheme should be arranged and carried out *en route*. Whenever possible maps should be issued to all ranks.

The time put in in week-end camps should not count towards efficiency. At least three camps should be held before the annual training.

The following is a suggested programme of work :—

- (i) Skirmishing.
- (ii) Musketry, fire control, direction, and discipline.
- (iii) Look-out station work, and recognition of shipping.
- (iv) Judging distance over land and water. The latter may be carried out at a rowing boat or at buoys, &c., the distance of which can be obtained locally from coastguards.

The above scheme for the training previous to the annual training should enable officer commanding battalions to carry out advanced work during the 15 days' training.

Training N.C.O's. — The N.C.O's. will, of course, undergo the same system of training as the men, but in addition they must receive extra instruction to enable them adequately to instruct their sections or squads. This extra instruction should be carried out by the following methods :—

- (a) Lectures by the adjutant at least twice a month at each company headquarters.
- (b) Classes of instruction under the Permanent Staff Sergeant Instructor, the work to be progressive, and a syllabus drawn up and submitted to battalion headquarters each month.
- (c) Week-end tours under the adjutant and selected officers.

In reference to (a), the subject of the lectures should be announced at the commencement of each month, and N.C.O's. should be encouraged to ask questions on completion of lecture. This gives them more interest in the subject and draws a larger attendance.

Regarding (c), very useful week-end tours may be arranged with the help of officers or N.C.O's. of other units, *e.g.* .—

- (i) Instruction in hasty entrenchments ; hasty demolitions without explosives, assisted by R.E. Officers or N.C.O's.
- (ii) Explanation of shipping, signals, tides, buoys, &c., by a Coastguard Officer or Warrant Officer.

Company officers should encourage their N.C.Os. to give lectures to their men on return from a week-end tour.

NOTE.—The system of section training has met with great success in one cyclist battalion. The sections of a company are so organized that the men of any one section are always at drill on the same night,

e.g., No. 1 section can get all their men together on a Tuesday, No. 2 on a Wednesday, and so on. This arrangement means that when a N.C.O. of No. 1 section goes to the drill-hall on Tuesday he knows he will find men of his own section there. A combined company parade may be held once or twice a month.

Training officers.—Difficulty is often experienced in getting officers to attend more than three week-end tours during the training season. At least one of these should be devoted to coast defence work only. On the day of assembly the detail of the manning, supply, and transport of the area should be carefully gone into on the ground and indoors. On the second day the officers should be given simple schemes to work out, *e.g.*, an attempted landing at a given point, a successful landing, practice at writing messages and reporting to the proper authorities, and the reinforcement of a threatened point.

In addition to above, the following should be carried out during the training season :—

- (i) Lectures to officers by the adjutant at convenient centres where the officers of two or more companies can collect together.
- (ii) Papers of questions set monthly to test the knowledge of the officers in the detail of their sections.
- (iii) Careful monthly examination of all papers connected with their duties, &c., on mobilization, and in the event of the occupation of their section.

At these inspections the papers referred to in (ii) may be gone through with the officers.

All officers should be encouraged to visit their sections on every possible occasion, and make themselves thoroughly acquainted with all the information they can obtain, any changes, &c., being at once reported to battalion headquarters. Arrangements can be made with the Post Office authorities for officers to visit telegraph and telephone rooms and exchanges. This will enable them to obtain information as to the route taken by main trunk lines, and the points at which special observation would be required to prevent damage which might affect a large number of circuits.

Training machine-gun section.—The sections should be raised in the same town. This will facilitate instruction and training. A range on which Table C can be carried out should be available within easy distance.

Owing to transport for the guns only being available during the annual training, it is often very difficult for machine-gun officers to obtain new ground for their men to work over. An allowance granted to machine-gun sections of cyclist battalions for the occasional hire of motor transport would be most beneficial to their training. As it is the work must of a necessity consist largely of giving the men a thorough knowledge of the mechanism, rectification of faults, and

theoretical knowledge. The Hill Siftken Landscape Targets are of very great assistance in training the men in picking up targets, fire direction, and control.

The N.C.O's. and men should be instructed in map reading and semaphore signalling.

The sergeant should obtain a Hythe Certificate as soon as practicable.

Week-end tours may be arranged to take place at dépôts or Regular barracks, where the services of a Regular officer may be obtained.

Range-takers must be trained; but as at present only one mekometer is allowed per battalion, this is only possible in camp, as the instrument is required for circulation amongst the companies.

Cyclist battalions have just been provided with the Mark IV tripod mounting. This, owing to its lightness, is very suitable for rapid movement, and in an emergency could be carried on the carrier of a motor cycle.

Signallers.—Some difficulty is at present experienced in training signallers, owing to the limited amount of equipment issued to them. Four lamps only are available. These could with advantage be increased to, at least, eight per battalion.

Postal telegraph clerks should be enrolled as signallers whenever possible, also men who have a knowledge of telephone work.

During the annual training signallers should be instructed, if possible, in communicating with the Navy. A knowledge of the international flag code would be of great service.

Despatch riders.—At least four men per company should be selected as despatch riders. They should be strong riders, have a thorough knowledge of map reading, and an intimate knowledge of the area in which they would be stationed on mobilization.

Motor cyclists.—When the motor cyclist section, at present shown in the establishment of a cyclist battalion, is raised, it will prove of immense value in coast defence work. Every section headquarters should have at least two, the remainder being at battalion headquarters. They will supplement the telegraph and telephone, either in the event of this means of communication breaking down or in conveying a duplicate message. Motor cyclists are not suitable for patrol work when once the enemy have landed, owing to their pace and noise, but are of the greatest assistance for intercommunication purposes in rear of the firing line.

A motor cyclist should be thoroughly proficient in map-reading, be in possession of a strong medium-powered machine (fitted with a reliable silencer), and should carry repair outfit and spare tubes.

The rifle is most unsuitable as an arm for motor cyclists, and it would seem advisable to arm them with revolvers, or automatic pistols.

Week-end tours may be arranged for motor cyclists, despatch

carriers, and signallers, in order that they may have practice in working in conjunction with each other.

A difficulty has been found in getting motor cyclists to join and attend drills. It is suggested that a motor cyclist should be expected to attend his 10 drills per annum, fire a revolver course, and attend at least two week-end instructional tours for map-reading, despatch carrying, &c., and should not be eligible to draw his motor cycle allowance during the annual training unless he has complied with the above.

Engineer pioneers.—Cyclist Training, Section 4A, lays down that one N.C.O. and four men per company should be trained as pioneers. These men should be specially selected from men who follow the following trades: plumbers, joiners, linemen, &c. They should be encouraged to attend a course at the School of Military Engineering for Cyclist Pioneers, and also week-end camps, at which arrangements can probably be made for an R.E. officer or N.C.O. to attend to give instruction.

During the annual training they should be under the instruction of an attached R.E. N.C.O., and should be required to pass an examination on completion of the course. A badge to be worn by those successful at these examinations would be a great incentive to men to attend these courses.

The method of carrying the tools and explosives by cyclist pioneers has not yet been decided, as the store tables have only recently been issued.

Scouts.—Great care should be exercised in the selection of men for this work. Sufficient should be trained to allow for wastage or inefficiency. They should be drawn from one district, and the scout officer should live in the vicinity.

Week-end tours can be arranged and work carried out by day and night. During annual training the services of a Regular scout officer should be obtained, and the scout officer and scouts placed under him for instruction. The above applies to battalion or first-class scouts. In addition, at least three men must be trained by companies as company scouts. The company scouts should be encouraged to attend the week-end tours held by the scout officer.

Annual training.—During the annual camp the battalion should be exercised at least twice in the manning of coast defence sections. If the number of men in camp will not permit of the whole area allotted to the battalion being fully manned, it is advisable to only man, say, two sections thoroughly, and thus give all ranks the opportunity of being exercised in all the duties they may be called upon to perform. At these exercises it is of the greatest importance that every detail should be carefully explained and the writing of messages and reports very thoroughly gone into. Owing to the usually large recruiting areas of cyclist battalions, the annual training is the only occasion

on which the commanding officer can carry out this very important exercise, and it is, therefore, of the utmost importance that the minutest detail be gone into and thoroughly worked out, and any redistribution of stations adjusted and tested.

Officers commanding companies should be allowed to take their companies through their own sections, and the N.C.O's. and men who would occupy the various posts should be shown everything possible that is known of their particular position.

Despatch riders and motor cyclists should be exercised and practised in the transmission of reports and messages. Concentration by supports on a given point and the occupation of suitable defensive positions in the event of an enemy effecting a landing must be practised.

Firing at targets at sea to represent an enemy landing and to accustom the men to firing over water, should be carried out during the training, artillery targets and toy air balloons being employed to represent the landing parties.

Situation of camp.—The annual camp should be held at some point on the coast which offers facilities for the above programme to be carried out. Suitable ground should be available in the neighbourhood for infantry training.

Conclusion.—This paper has not gone into the training of the cyclist as an infantryman, but only into the methods suggested for his training in the special duties assigned to him in the event of mobilization. The fact that a cyclist is only an infantryman mounted on a cycle to increase his mobility must not be lost sight of, and, therefore, before the instruction of a cyclist in coast defence work can be commenced, he must have a thorough grounding in the work and duty of an infantry soldier.

XVII.

RECRUIT TRAINING IN THE TERRITORIAL INFANTRY.

By COLONEL W. SCOTT-MONCRIEFF, Commanding the Lothian Infantry Brigade.

IMPORTANT as the training of recruits is throughout the Army, it has greater comparative importance in the Territorial Force than either in the Regular Army or Special Reserve. The reasons are :

- (1) It is the only really progressive instruction of which we can be sure. The 10 compulsory drills for trained men have to be spread over from 15 to 20 opportunities, so that it is very difficult to make them progressive ; and though more can be done at camp, we are hampered there by the eight-day men, some of whom attend the first eight days, and others the second.
- (2) The work is entirely supervised and conducted by trained instructors from the Regular Army.
- (3) The recruit on first joining is full of keenness. This is, of course, also the case in the Regulars and Special Reserve, but the Territorial Force cannot exist without this quality. If we can imagine a corps in which no man does more than his legal minimum (eight days in camp, 10 drills, and musketry) and could then compare this imaginary corps with any good Territorial battalion, we should realize the difference in efficiency which the work of the keen men makes. Recruit drills, if conducted in an interesting manner, will foster this keenness ; but if they are dull, monotonous, or slack, they will soon take the edge off all enthusiasm.

The syllabus given as a guide to training recruits in the Regulars in the appendix to Infantry Training, 1911, occupies 266 hours, but in the Territorials 40 hours is all that we are entitled to demand. This shows the difficulty of the problem and the importance of using our all too little time to the very best advantage. It is often said that the superior education and intelligence of the Territorial recruit

must enable him to learn quicker than the Regular. This may have been the rule in the time of the Volunteers, but of late years the standard of intelligence and education in the Regular recruit has risen, whilst on the other hand the best classes, who used to join the Volunteers, do not enlist so freely into the Territorials, principally because they cannot afford the time which the increased work in the Territorials demands, whilst the pay attracts a lower class who did not join the Volunteers. The most intelligent classes in town corps are those recruited from clerks, students, apprentices, and shopmen ; and in country corps, miners and small tradesmen. But both town and country battalions get many factory hands and artisans of the lower class, whose ordinary work is entirely mechanical and unlikely to stimulate the intelligence. Probably the average of the Territorial recruit is a little higher than that of the line recruit, but the adjutant who expects always to find this superior intelligence will get many disappointments.

One advantage possessed by the Territorial battalion, especially a country corps, is that the squads generally have a more level standard and more characteristics in common than in the Line. As all the men belong to the same town or district and generally join in batches from the same employment, there should be little difficulty in squadding by classes ; whereas in a squad of Regular recruits, all sorts and conditions of men stand shoulder to shoulder. If a Territorial squad is formed of active athletic young fellows of the clerk or student class, or of sturdy miners, physical drill can be cut down to very few practices ; or if they have been drilled in a Boys' Brigade or as Boy Scouts, squad drill can similarly be shortened. Such minor advantages will, however, go a very little way of themselves. Our aim is rather ambitious. We wish our recruits at the end of their course to have learnt how to increase their strength and activity by physical exercises, to drill steadily in close order, to keep their rifles in good order, to put on their equipment, to shoot the recruits' course with success, to work with intelligence and dash in extended order, and to handle their arms with fair correctness and precision. If the squad makes good progress we should wish to add instruction in night operations, visual training, and bayonet fighting. If we are to do this in 40 drills of one hour each, we have a very heavy contract to carry out. The real chance that an adjutant has of producing a squad that gives a satisfactory result, is by making the work so interesting to his men that they voluntarily work outside the drill hours in trying to make themselves efficient.

When a recruit is enlisted the instructor should take his name and address, and tell him that he will be informed of the date and hour when his squad will commence their drills. He should also tell him that the drill hall is open every night or on certain nights, and that he may come whenever he likes till his drills commence. If

there is gymnastic apparatus he should be encouraged to practise gymnastics, shoes being lent him. In some battalions the recruits are put through a special gymnastic course for 10 days, or more, before they commence their 40 drills. That, of course, when it can be managed, adds one-fifth to their instruction at once. When the squad parades for the first time the adjutant should always be present in a town corps, and whenever possible in a country corps; if he cannot, the officer commanding the detachment should attend. After inspecting the squad, the adjutant should assemble them round him and should say how pleased he is to see that they have recognized their duty as citizens, and have come to be taught how to take a man's part in their country's defence in time of danger. He should then state briefly the qualifications and accomplishments of an efficient soldier, and show how every sort of drill and training, which the squad is about to practise, has a definite aim in fitting them for their duties on active service. Musketry, extended order work and training, of which the purpose is obvious, must be very lightly touched on, but the importance of a strong and active body, and of the ability to march and manoeuvre in close order, must be impressed on them. Salutes and compliments should not be omitted, or they will be looked on as impossible of explanation. The men must be told that discipline, the first necessity of an army, depends on the recognition of and prompt obedience to superior rank; that salutes and compliments are the outward and visible sign of the inward discipline; and that if soldiers see a corps salute in a slovenly manner, or not at all, and slap their rifles like a *feu-de-joie* when they present arms, they do not credit that corps with having devoted its time to more useful work than practising compliments, but classify them at once as a "useless crowd of slackers;" and as it is easier to live up to a bad reputation than to a good one, they will probably soon merit the description. He should further explain that 40 drills, or four times 40 drills, are insufficient of themselves to turn a recruit into an efficient soldier; that in the matter of physical training each man will be shown the exercises which will improve his muscular development, and if he will devote about 15 minutes every day to practising them by himself, he will undoubtedly increase his strength and activity; similarly that drill teaches a man to hold himself upright and alert, body and mind ready for orders; but if the recruit slouches along to his work, with his eyes on the ground, his shoulders up to his ears and thoughts anywhere, he cannot expect a few hours' drill to counteract a settled habit. Also, if he occasionally takes the trouble in his spare time to go through the rifle exercises with a stick, he will soon find it possible to move his arms and rifle without wriggling his body or bending his head. An adjutant new to the work will be surprised to find how many men will do what he recommends, especially as regards physical training. Every young fellow wishes to be a powerful man, and

those of poor physique have often joined the Territorials partly in hope of the drills making them bigger and stronger.

With regard to the method of instruction, almost every sergeant-instructor and probably many adjutants would say that one subject should be mastered before another was commenced, except physical training; that no man should be given a rifle till he was fairly proficient in squad drill without arms; and that the whole course could be done quite satisfactorily in the drill hall, though it would be better to finish up with a couple of extended order parades in the open. Undoubtedly, if you have good instructors, working on the lines of the Regular Army, which they know well, you will get some good squads; but the above method has grave drawbacks for Territorials. A week of squad drill without arms is too monotonous. The recruit will say at the end of it that he has done a quarter of his drills, but that if an enemy landed he could only salute him, right or left hand, or turn about correctly and move off at a steady double. It must be remembered that the Territorial recruit does not bring his intelligence and body fresh and untired to the drill hall. He has a long day of work behind him, and it is hard to keep his attention on the strain for long. Variety of subject is what is required, say, 20 minutes' physical training; then, perhaps, 20 minutes to half-an-hour at squad drill without arms; then the squad should be given rifles, the different parts explained, and some instruction in cleaning and in the manual exercises might be given. As far as can be managed, lectures—very short ones—should alternate with drills. I believe in issuing the rifle the first day of drill. The recruit's ambition is to handle one, and it will keep up his interest through the first few days if he does so. No squad of recruits should be dismissed till they have had at least four hours' extended order work in the open. The recruit learns much quicker from a Regular instructor than from his company officer, so he must learn extended order work before dismissal, for he cannot rush with spirit, nor throw himself down behind cover in a drill hall.

The awkward man is a great difficulty with Territorials. You cannot put back everyone who delays the progress of the squad, as in the Regulars, till only a survival of the fittest parade for final dismissal. If there is another squad, even a month or more behind, it is desirable to put back into it those men who are much below the average. Often the men put back are those who have missed drills, probably unavoidably, and can finish with the other squad without exceeding their 40 drills; but even if they cannot do so, no recruit worth enlisting would object to a few parades in excess of the legal minimum to improve his efficiency. The trouble is when, in town corps, it is the last squad of the season; or, in country corps, probably the only one, so that there is no getting the awkward man out of the squad. There is no remedy for this, unless he is bad enough for discharge as unlikely to

become efficient ; but something may be done by getting him to come early for parade and giving him a little special instruction in the subjects in which he is weak.

It does not do to frame an exact syllabus beforehand for recruit drills. The programme must depend on the progress, and a quick intelligent squad must reach more advanced work than a slow one. In corps where half-a-dozen squads are scattered, perhaps over two or three counties, and the adjutant cannot supervise them closely, it may be as well to lay down some programme to ensure uniformity of training in the battalion ; but it should be more an order as to the sequence of subjects than as to the number of drills to be given to each, or it may hamper an intelligent squad or hustle a backward one.

It is an excellent thing if a sporting interest can be combined with the work. In some country corps boxing lessons are given after the drills, and some recruits have always a round or two at the end of the evening. At one detachment wrestling takes the place of boxing. Bayonet fighting can also be taught this way. Early in the course elementary instruction is given as part of the drill, and later on some of the squad stop behind each night and have a set-to. This is especially valuable, as unless the Territorial has some idea of how to use his bayonet, we can hardly expect much aggressive spirit from him, if he is ever called on to fight ; and unless he is taught as a recruit, there is little opportunity of teaching him at all. We try to make the drill hall a school of arms in the winter months, where men may learn and practise bayonet fighting, gymnastics, boxing, &c., and the recruit is much more likely to take up bayonet fighting then, if he has already some knowledge of it. The difficulty in town corps is time, and in country corps money. In the former, three instructors have about 200 recruits to put through in a limited time. Each night they work for two hours, counting two drills. If they begin at 8 p.m. and then have bayonet fighting, it makes it late for young fellows who may have some distance to go and have to start work early in the morning. Still, some battalions do manage it. It is often possible to start drills before 8 p.m., and it is worth a little inconvenience and difficulty in arranging. In country corps—where there are probably six or eight instructors, who each put one or two recruit squads through their drills in the year, and therefore do not usually give more than one hour in a day, time presents no difficulty, but money does. Bayonet fighting equipment is expensive, spring bayonets easily broken, and County Associations do not always see their way to provide and maintain this equipment for a number of detachments. In such cases boxing is a good substitute—a sergeant instructor will generally know enough about it to teach a squad of country lads (though a squad of miners may produce a surprise for him), and boxing teaches much that is a good foundation for bayonet

fighting later. Miniature target shooting also presents opportunities for the sporting spirit. Matches can be got up between recruits of different companies or sections, and can be fired on Saturday afternoon, or whenever the weekly half-holiday may be. This half-holiday must not be taken for drills. The recruit is giving a lot of his time, and must have that afternoon to himself; but he will probably enjoy spending it in a shooting match. Perhaps some prominent shot in the company or section, looking out for new blood in his team, will come and coach his side. No effort should be made to work in practical musketry into these matches—time enough for that later. Bull's-eye shooting is the best thing for the young shot, and if he becomes a decent bull's-eye shot, it will be easier to impart more useful musketry instruction from a service point of view later.

As a rule an instructor takes entire charge of a squad and teaches them everything. If there is one who has specialized in musketry, gymnastics, or other subject, it might, perhaps, be better for him to take every squad in his own subject. There is a good deal to be said on both sides of this question, but there is no doubt that there are occasions when a squad requires two instructors. Take aiming drill for example: With a squad of fifteen men, six are probably at the tripods, each requiring careful individual attention, and nine are probably snapping listlessly at bull's-eyes, no one instructing them or caring about their positions, very probably acquiring faults that will take a lot of trouble to eradicate. This is sheer waste of valuable time. These men should be working under another instructor, and the one superintending aiming drill should have his six men only. When he is done with them they must be relieved by another six, and join the rest of the squad. If the Permanent Staff are too busy to assist each other in this way, a Territorial N.C.O. might be obtained for the evening.

A possible danger to be guarded against, especially on detachment, is the stupid instructor who imagines that easy discipline and a go-as-you-please system may make his recruit drills popular. If an adjutant sees any symptom of this he should nip it in the bud at once, as slackness and want of discipline disgust the men who are keen to learn.

The method in which drills are conducted affects recruiting. If the recruit is interested in them, he talks about them to his friends and perhaps brings them; conversely, if he is not, he grumbles over the hardship of attending them. The instructor should encourage his squad to bring their friends to look on—indeed, any likely looking young fellow might be invited in to see what was going on. Benches for them might be put near the wall, but smoking must not be allowed, or there will be a danger of attracting the class which prefer sitting smoking and watching their friends work to working themselves. Tactfully managed, more can be done towards recruiting in this manner than by peacocking about the town behind the band

and calling it a recruiting route march, which is looked upon by many people as the best way of recruiting, but which I have not found produce results worth the two drills sacrificed for it. An adjutant will find it well worth his while to make every possible effort to keep up a steady annual contingent of recruits, for if a town corps is caught by a recruiting boom when much below its establishment, training gets knocked to pieces for that year, unless the situation is very carefully handled. During a boom the whole battalion—and many who have nothing to do with it—become recruiters. The doctors look with a lenient eye on weedy boys whom, in ordinary times, they would never pass. An extraordinary idea prevails that the supreme aim of a Territorial battalion is to count a great total of heads, no matter how feeble the bodies supporting them may be. If the boom is allowed to run its course unchecked, an adjutant may find himself within a few weeks of camp with 400 or 500 recruits, mostly feeble lads, and but three instructors to train them. As soon as there is any symptom of a boom an adjutant should go to the nearest Regular corps and find out what assistance he can expect from them in temporary instructors. He will be lucky if he can get two, generous as Regulars always are to Territorials. As all regimental officers know well, there is no large margin of good instructors beyond regimental requirements in a battalion, especially in the season for collective training, and during a boom every other Territorial corps in the district will also be asking for instructors. Extra range accommodation must also be applied for, and then the adjutant will be able to see what is the maximum number of recruits whom he can train properly. When he has fixed the limit he should go to his commanding officer and ask him to raise the minimum measurements. This will at once steady the rush, and he must keep on getting his measurements raised the nearer he gets to the limit of number. If he can thus utilize the boom to improve the quality of the corps he will have turned the threatened danger to good account.

XVII

THE NORTH IRISH HORSE.

By CAPTAIN E. M. DORMAN, 4th Dragoon Guards,
Adjutant North Irish Horse.

THE North Irish Horse were raised in 1903 under the title of "The North of Ireland Imperial Yeomanry," but came into their present title in the year 1908, when they were changed from Yeomanry to Special Reserve.

The North Irish Horse and its sister regiment the South Irish Horse are unique as being the only Special Reserve Cavalry in the British Isles; and as there are no Yeomanry corps in Ireland the recruiting area thrown open to them is a very large one.

The recruiting area of the North Irish Horse is roughly the Northern half of Ireland, and in order to take full advantage of this its squadron headquarters have to be widely scattered. The regiment is composed of four squadrons with headquarters at Londonderry, Enniskillen, Dundalk, and Belfast. The latter place is also the headquarters of the regiment. The Permanent Staff is composed of an adjutant, a regimental sergeant-major and four squadron sergeant-majors, who besides their ordinary duties act as recruiters.

There never has been the slightest difficulty in getting recruits, in fact double the number required could easily be enlisted, and therefore the regiment is in the enviable position of being able to pick and choose. Before a recruit is finally approved of, he has to pass a riding test under the supervision of one of the squadron officers or the adjutant. The vast majority, about 90 per cent., of the men of the regiment are farmers or farmers' sons owning their own horses, and it is this type of true yeoman that is required to fill the ranks of our Yeomanry and similar corps. A certain number of special men have, of course, to be enlisted, such as cooks, farriers, etc. The farriers enlisted are small country blacksmiths, who require little further training in their own particular sphere. The enlistment of cooks is an innovation, and was only carried out at the beginning of last year. Previously, as I believe is the case in most other similar corps, the messing was handed over to a contractor, a system which

in peace time works very well and ensures a larger number of men on parade ; but on active service such an arrangement could of course not be made, and it is therefore unpractical.

The class of man enlisted compares, on the whole, very favourably with any other similar corps. The recruits are men of some substance, owning their own horses, and are somewhat like the Indian Silladar Cavalry. Here, then, we have splendid material to work on.

Let us, however, for a moment look at the other side of the picture. The material is indeed of the very best, but certain difficulties have to be overcome in welding it into an efficient force. The chief difficulty is the enormous area the men are enlisted from ; this involves having no less than 32 drill stations with an average of 13 or 14 men to each station, and while 7 miles is the average distance which men have to ride for their drills and lectures, some have to go as much as 18 or 20 miles. Drills and lectures are nevertheless exceedingly well attended, which proves the keenness of the men, but the stations are so far apart and there are so few men at each that it is impossible to carry out any combined schemes or practical work except of the very simplest kind ; anything, therefore, in the nature of practical schemes and exercises involving a number of men have to be left to the annual camp. Mounted drills during the winter are also very difficult to organize, for the men use their horses at that time for ploughing and farm work, and cannot spare them for mounted drills. It is impossible to hire horses for the men at these small stations, and as there are no cavalry regiments stationed in the district, Government horses cannot be utilized as they are by many English Yeomanry corps.

The musketry results are better every year ; at nearly every drill station there is a miniature range, or one can be improvised. The annual course, for which the men come in and are billeted at their squadron headquarters, is fired during three days in the spring, good range accommodation being available at each of these stations.

The annual training, lasting 24 days, takes place in the early summer, as it is found that at that time the men can most easily get away, and their horses are not then required on the farms. The men look forward to this annual camp, for they regard it as a holiday among their friends, and one which does not cost them anything, and, indeed, puts a little money in their pockets. There is a considerable amount of Scottish blood in the North Irishman.

The list of absentees without leave from annual training is a comparatively small one, and on investigation it is generally found that the majority of the absentees have emigrated to America or the Colonies, but have not seen fit to purchase their discharges before going.

A considerable amount of work can be got through during this annual training, and its longer duration—24 days against the 15 days

(1843)

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of the Yeoman—gives the North Irish Horseman a considerable advantage. If, however, the training could be still further extended to a month, the greater efficiency attained would more than justify the extra expenditure involved, especially as the main expense of a camp is in erecting it and bringing men and horses by rail, and the extra seven days only involves the cost of the men's pay, and rations for men and horses.

The horses brought to camp by the men are, on the whole, very good, very few being rejected by the Board that inspects them at the beginning of the training. The quality, however, would improve if a remount officer made a practice of visiting the camp towards the end of the training period to purchase those suitable for Army purposes. At present the men find that the type of horse that they can sell best and which they find most useful to themselves all the year round is a cart or plough horse, unsuitable for fast work. If, however, there were a market for the ordinary riding or troop horse, a larger number would be brought each year, and this would encourage them to breed or bring a more useful type of horse to training. The men are not allowed to bring a horse under five years of age to camp.

The discipline is very good. There is a little difficulty in getting the men to show due respect to their troop sergeants or section leaders, whom they probably call "Bill" or "Jim" in private life, but with whom they work wonderfully well at camp. There are very few cases indeed of offences which have to be brought before the commanding officer; in fact, the average is about two per training. It is absolutely essential that the commanding officer should have a free hand in administering punishment. There is one offence—*viz.*, drunkenness—for which the only suitable punishment is instant dismissal from the corps, a punishment which is felt much more by the man than any award of detention, for he has to undergo not only the ridicule of his comrades but also that of his friends when he gets home. Certain minor offences have to be dealt with rather leniently from a Regular soldier's point of view; but, on the whole, there is very little difficulty as regards discipline. Up to the present a court martial has never had to be held on any member of the corps, and it is to be sincerely hoped that the convening of such a court will never be found to be necessary.

The present organization of the regiment seems to be very suitable, at any rate during peace time. On mobilization the regiment finds one squadron for the Expeditionary Force. Under the present arrangements the men that go to form this squadron are changed every year, so that each man gets his turn on the roll. It would, however, seem better if the same men formed this squadron without unnecessary changing. To carry this out it would be necessary to form this squadron from volunteers, and if an extra bounty of, say, £1 a year was paid to these men, it would be found that so many

men would volunteer that the squadron could be composed of picked men.

The pay, allowances and bounties allowed during the annual training are as follows :—

		<i>s.</i>	<i>d.</i>	
A squadron sergeant-major draws	..	4	4	per day.
Squadron quartermaster-sergeant ..	..	3	4	„
Sergeant .. .. .	..	2	8	„
Farrier-sergeant .. .. .	..	2	10	„
Corporal .. .. .	..	2	0	„
Private .. .. .	..	1	2	„

Each N.C.O. and man draws 1s. per diem messing allowance in addition to the ordinary ration of bread and meat. Each man is allowed forage and 6s. 8d. per day for his horse, which for the training of 24 days works out at £8.

Each N.C.O. and man is also entitled to a bounty of £5 a year, provided he has attended camp and drills, and has proved himself efficient. These bounties are made up as follows :—£1 equitation bounty and £4 non-training bounty (being £1 for each quarter). Thus a private soldier can draw for the year a sum of £14 8s., exclusive of pay and allowances for three days musketry, during which time he is billeted. He is provided with clothing, saddlery, and equipment, and has only to provide himself with a pair of boots.

As regards their usefulness on service, taking into consideration their average intelligence, education, and present training, they would apparently be best employed as divisional cavalry. The men are at present only armed with a rifle, and would, therefore, if taken by surprise, and if they did not have time to dismount, be absolutely at the mercy of a cavalry soldier armed with a sword or lance. It is this lack of another arm which considerably curtails their scope of action, and makes them feel at a disadvantage with a Regular cavalryman. The present cavalry sword is not a weapon suitable for a partially trained swordsman, but if the regiment were armed with the old pattern cutting sword, which is now being relegated to the scrap-heap, the men could be trained sufficiently well in its use to make them extremely formidable as an enemy.

Care, however, would have to be taken to impress upon all ranks that the sword in their hands must only be looked on as a secondary weapon of offence. If the sword is introduced into the regiment the present rifle bucket, which is of the mounted infantry type, will have to be exchanged for that of the regular cavalryman. This latter change in itself would be a great improvement, as carrying a rifle for any distance in the present bucket with the muzzle of the rifle banging against the rider's shoulder is anything but a pleasure.

As regards the officers, the regiment is extremely fortunate in having a large portion of ex-Regular cavalry officers, who have also

intimate association with the country. The commanding officer has commanded the regiment since its creation. The four squadron leaders, two of the captains, and the senior subaltern are also ex-cavalry officers. The remainder of the officers nearly all live in Ireland, and are in close touch with the men.

Examinations for promotion have now been instituted. It is hoped that officers will study and go up for them, in spite of the fact that they may find it difficult to spare the time to attend instructional classes that are held to assist in the preparation for these examinations.

XIX.

THE BOARDING-OUT SYSTEM FOR SUPPLYING HORSES FOR THE TERRITORIAL FORCE.¹

By COLONEL H. H. MULLINER, R.F.A. (T.F.)

GENERAL DESCRIPTION.

THE scheme provides a means of obtaining horses for the use of Territorial units at their local headquarters, and for a part of the number required at their annual trainings. It is especially applicable to the requirements of the Royal Artillery, Royal Engineers, and Army Service Corps Territorial Force units, either in the London area, in provincial towns, or in country districts.

The general principle is that Associations, by means of loans from the War Office, purchase horses and lend them to selected tradesmen, farmers, and others in the neighbourhood, who, in return, send them in to the local headquarters one evening a week and on Saturday afternoons during part of the year, and also for the 15 days' annual training.

A battery possessing its own horses is in an incomparably better position than when hiring has to be relied on; both officers and men naturally take a much greater pride in the corps. With horses they know, the men (many of whom previous to joining were unaccustomed to riding and driving) soon obtain confidence. Experience proves that far greater efficiency soon results. Valuable time is saved at each camp; sorting out a number of hired horses for the first time, finding out which are suitable for wheelers, leaders, &c., occupies a large part of the 15 days. The anomaly of mounted units actually without horses is avoided. The nucleus of trained horses would be invaluable in case of mobilization.

In addition, it must be remembered that in many places where local headquarters are established it is impossible to hire horses at all, also that when horses are hired the class of animal obtained has, in very many cases, been most unsatisfactory.

¹ The writer acknowledges his obligations to Major West and Lieutenant Cecil Nickalls, to whose abilities and energy the success of the scheme is largely due.

When the loan is repaid, the unit, owing to the annual replacements, will still possess the same number of horses as originally purchased, and the amounts which have annually been allocated to repayment of the loan can then be devoted to purchasing extra horses or other purposes.

However, it must be recognised that the adoption of this scheme entails extra work for the officers, adjutant, and staff, and unless the commanding officer feels that he can rely on such extra service being willingly given, not only at its initiation, but for the supervision of the working of the scheme, it is recommended that a loan for purchasing should not be applied for.

Authority for the adoption of the scheme under certain conditions was given by the War Office in November, 1910 (Circular Memorandum No. 299), and an extension of the scheme has been recently approved (Circular Memorandum No. 403).

The former contains preliminary suggestions and offers to advance to all Associations a loan for the purchase of horses under the scheme, such loan not to exceed the total amount of the Association annual equitation grants (as laid down in para. 744), the Associations being, of course, at liberty to devote the whole or any part of such loan to the requirements of one or more of their units. The later circular memorandum offers further loans to Associations who have tried the scheme and are able to produce balance sheets showing that it is working satisfactorily.

Lectures (with subsequent discussions) were given at the Royal United Service Institution on 13th March, 1912, and at a dinner of the National Defence Association the week following. Reports of both have been published and can be obtained from the secretaries of those societies.

When the scheme was first initiated, one difficulty was that in no case was any Veterinary Officer attached to the Divisional Staff; in other words, there was no officer whom Associations could consult as to the purchasing of the horses, or their supervision afterwards, or to whom they could officially apply for technical advice. These difficulties have now been overcome by the appointment of an Administrative Veterinary Officer to each division. As his duties include the raising of a Territorial Veterinary Corps, Associations will in future have the benefit not only of the help of an Administrative Veterinary Officer but of a number of local Veterinary Officers. It may be expected that one of these Veterinary Officers will be appointed in each district where Government horses are obtained under this scheme, who, in addition to assisting the Commanding Officer of the local unit in the general supervision, would no doubt agree to act professionally at a fixed annual rate per horse for all the horses in his district.

It appears probable that the scheme will now develop considerably and the following suggestions (the results of actual experience) are

offered, not only for the consideration of Associations but of Commanding Officers, Battery Commanders, and others who, in case of the scheme being adopted for their unit, would be concerned in its management. It is felt that the more the advantages and difficulties are realised, the more numerous the practical criticisms and suggestions the system receives, the more likely it is that it will become universal—a result which would not only overcome the present difficulty of obtaining suitable horses for the Territorial Force, but would provide 8,000 horses always available in case of mobilization, and this result would be obtained without any increase above the present expenditure.

Further, the scheme is easily capable of extensions, so that in time every unit could possess a large proportion of its full strength of horses. -

OBTAINING THE WAR OFFICE LOAN.

Loans for the purchase of horses are only granted when the revenue, based principally on the existing grants which the unit receives, is sufficient to meet the estimated expenditure in connection with the system, including the repayment of the loan within 10 years.

When applying for a loan, in addition to naming the amount required, *i.e.*, the number and estimated cost of the horses, a prospectus on business lines should be submitted to the War Office, showing how the scheme is to pay its way. In this it would naturally be shown what funds are available :—

- (a) To repay the loan within 10 years, without interest.
- (b) To provide for replacement of horses.
- (c) To cover veterinary and other incidental expenses.

Also what revenue is available, including :—

- (a) The equitation grants (para. 744).
- (b) The camp grants (para. 779).
- (c) The amounts receivable from the borrowers, or from any other source.

The following remarks on each of these points may be of assistance :—

Purchase Price of the Horse (Suggested £42 each).—The borrower requires the horse for immediate use, and the Territorial unit has no facilities for conditioning or breaking in horses. The horses must therefore be bought aged not less than five or more than nine years, and quiet to ride and drive and in fair condition. This amount, if care and judgment are exercised, should prove sufficient. The figure must include any purchasing expenses and delivery to the borrower, as the keep of the horse, if on the hands of the Association, even for a few days, would be a loss on the scheme.

Repayment of Loan (Suggested one-tenth).—This figure is the limit which the War Office are prepared to accept ; it will be noted that no interest on the loan is charged.

Replacement of Horses (Suggested one-sixth per annum).—This assumes that one horse out of six will have to be replaced each year, whether cast from lameness or accident or vice, or by death from natural causes. Upon the accuracy of this estimate compared with actual results depends the success or failure of the scheme. It cannot be too strongly emphasized that the result depends largely upon the careful selection of "homes," and the subsequent supervision. Horses found to be overworked or not well cared for must be immediately removed and placed in better "homes."

No separate provision has been included for insurance as it appears better finance for an Association owning a considerable number of horses to take the risks themselves. Policies of insurance in connection with horses are unsatisfactory; often a policy only covers death by misadventure, not partial or total disablement, and such a limited risk is of very little real value.

Occasionally it will happen that lame or sick horses have to be temporarily boarded out with farmers or others, but perhaps no provision need be made to cover this, setting off against it any amounts received for the sale of cast horses.

If at the end of the year it is found, as is practically certain to be the case at first, that it is not necessary to cast one-sixth of the horses, the amount provided can still be used for the purchase of horses, and such horses can be placed out with other borrowers. In other words, the reserve may as well be invested in horses as in the bank.

For instance, when the scheme was started at Rugby with 24 horses, at the end of the first year it was not necessary to cast any, but still four fresh ones were purchased, so even if eight horses had to be cast at the end of the second year, the estimate of one-sixth per annum would not have been exceeded.

If it should prove that the working life of the "boarded-out" horses is more than six years—and the horses kept in the Regular Army average 10 years—the number owned by the unit will gradually increase.

Veterinary Expenses (Suggested 17s. 6d. per annum).—This figure is the amount paid to local veterinary surgeons by railway companies and other large users. It includes medicine.

Establishment Grant.—The equitation grants were largely increased by War Office Circular Memorandum No. 339 of May, 1911. The new grants should of course be taken as the basis.

Camp Grant.—The figure of £5 per horse is in accordance with the Territorial Force Regulations (para. 779), but it must be remembered that if at the time of going to camp any horses are lame or otherwise unfit, the Association would lose the grant; on the other hand, at the end of the first year it is more than probable that extra horses would have been bought out of the replacement fund. These extra horses would each earn the £5 camp grant, and there would be no charge

against them either as regards the replacement fund or repayment of loan.

Borrowers (Suggestion each Borrower to pay 30s. per horse per annum).
—Under the agreement with borrowers (see Appendix) it will be seen that this amount is asked for towards the cost of insurance, that is really a part of the provision for replacements. Where the scheme has been tried, each borrower has been willing to pay this amount. If, however, the borrower prefers to insure himself, then the replacement fund (which works out at £7 per horse per annum) can be reduced by 30s.

NUMBER OF HORSES OBTAINABLE.

The number of horses which can be financed under the scheme depends upon the amount of the equitation grant to which the unit is entitled. Taking a single horse, the account stands somewhat as follows :—

Assumed cost of horse				£42
<i>Annual Expenditure.</i>				
				£ s. d.
Repayment of loan, $\frac{1}{10}$ th	...	...	...	4 4 0
Replacement, $\frac{1}{10}$ th	...	...	...	7 0 0
Veterinary expenses	...	...	...	0 17 6
Total	...	...	...	<u>12 1 6</u>
<i>Income.</i>				
				£ s. d.
Camp grant	...	...	...	5 0 0
Borrowers' payment	...	...	...	1 10 0
Total	...	...	...	<u>6 10 0</u>

Balance to be found from Equitation Grant, £5 11s. 6d.

The effect of this on any unit is easily calculated: Thus, a horse artillery battery with mounted brigade ammunition column receive a grant of £300, which would provide 54 horses. A Field Artillery Brigade (three batteries) with ammunition column receive a grant of £620, which would provide 111 horses.

When submitting estimates no credit must be taken for supplementary grants, as such additional grants cannot be annually relied upon.

It is, of course, open to a Commanding Officer to devote only part of his equitation grant to obtaining horses under this system, reserving the remainder for occasional hiring. This might be advisable at first in order to test the scheme, but it is strongly recommended that eventually the full number of horses be obtained, otherwise the demands on the borrowers are liable to be strained. It must occasionally happen that horses are unfit, or that on certain evenings or Saturday

afternoons a borrower has special reasons for not wishing to spare them. With sufficient horses a certain amount of give and take is practicable, and the result would be found more satisfactory on both sides.

It will be seen that with the present equitation grants sufficient horses can be obtained under this system to teach the men to ride and to take out a small proportion of the guns and wagons, but with further horses the drills could be more thorough and greater efficiency would soon result. For instance, it would be an immense advantage if each battery possessed half their full strength of horses, then on alternate occasions drills could take place with the full complement.

In most districts there would be no difficulty in finding sufficient borrowers, and each of the extra horses would earn both the £5 camp grant and the £1 10s. from the borrower. It is hoped that later on, in cases where the boarding-out system proves satisfactory, the War Officer will be able to provide a means for obtaining additional horses, possibly by permitting Associations to buy from Regular batteries horses which have reached 12 years.

ARRANGEMENTS WITH BORROWERS.

The form of agreement with the borrower, shown at the end of this article, has been found to work well, and so far there has been no difficulty in obtaining satisfactory borrowers on such terms. In Austria, where a somewhat similar scheme has been in force for many years, it is regarded as a valuable privilege to obtain horses. Borrowers, however, must not be accepted indiscriminately. In all cases before accepting any application, it is necessary to ascertain :—

That the class of work for which the horse will be used is not likely to render it unfit for military work, such as having to draw unduly heavy loads, as is often the case in road-making and by haulage contractors. That in all probability the horse will be kept fit and in hard condition, ready in case of mobilisation. That the stabling is satisfactory and—perhaps the best test of all—that other horses in the possession of the borrower are well cared for. Also, of course, that the distance of the stabling from the local headquarters is not too great.

The borrower should realize that he will be treated fairly, that he is at full liberty to use the horse in every way the same as if it were his own, and that no unreasonable restrictions are placed on him. It can be explained that the contract is to provide him with a horse for his requirements and that another will be supplied in case the first one lent becomes unfit through no fault of his.

Borrowers should also feel that by keeping and well-caring for the horse they are assisting the Territorial Force and that they have an interest in the welfare of the local corps. County Councils and Rural District Boards are generally willing to take the horses.

In the event of local displays, annual dinners, or public functions, borrowers might be invited. Some acknowledgment might also be shown to men in the employment of the borrowers who have the care of the horses; if funds admit of prize-givings they might be offered annually for the best "kept" horses.

It can be pointed out to the borrower that he may work the horse on the days when it is required in the evening; the amount of work which Territorials require from the horse, either in the evenings or Saturday afternoons, is not great.

If borrowers are fairly treated, it should not be a question of obtaining applicants; there should be a competition to get the horses. With a waiting list one can pick and choose the best homes and afford to take horses away directly they are not looked after satisfactorily.

It is impossible to specify any particular trade as producing the best class of user; similar trades vary considerably. For instance, some large jobmasters are excellent, others equally undesirable. Farmers are seldom near enough to the local barracks and their work is often too intermittent. On the whole, the tradesman who requires a horse for delivering goods to his customers is perhaps the most satisfactory; the regular work keeps the horse fit and in good condition.

If the borrower's stableman knows that someone will look at the horses regularly, he can generally be trusted to do his best; during the summer this inspection can take place when the horses are sent to the local headquarters, but during the winter they must be seen at their homes. Most borrowers welcome regular inspection. It relieves them of a certain amount of responsibility, but it must take place at convenient times, and no obligation must be placed upon the borrower to keep the horse in the stable.

It is advisable to consult with the borrower as to the evening in which he can best spare the horse, also to fit in a regular number for each riding class; for instance, if riding classes are held four nights in the week and there are 36 horses, it should be arranged which nine are to be sent in on each occasion.

The borrower must, of course, know the name of the Territorial Veterinary Officer or the Veterinary Surgeon with whom a contract has been made to attend the horses, and he must have instructions to inform him immediately in case of any accident or ailment. It should also be pointed out that he will incur no liability by so doing.

Hitherto the agreements with borrowers have provided that they bring and return the horses to the local headquarters, but it is thought that the men will willingly undertake this duty, and that it is better to relieve the borrowers of the responsibility.

The alternative arrangement in Clause 5 is provided to meet cases where the unit possesses a riding school and riding classes are continued during the winter months.

PURCHASING THE HORSES.

In the absence of any arrangement for obtaining the horses through the Remount Department, which is advocated as the better method, the Commanding Officer must be responsible for buying the horses. His duties could be deputed to the adjutant, the battery commander, or to any other officer in his command, but no horse should be purchased unless certified by the divisional Administrative Veterinary Officer, or a veterinary officer appointed by him, as being :—

- (a) Similar in type to those in the Regular Army.
- (b) Practically sound and suitable for the work for which it is required.
- (c) Aged not less than five or more than 10 years.

No horse should be purchased until the Commanding Officer has in his possession a signed agreement from an approved borrower to take the horse when purchased.

Before purchasing horses arrangements should be made with the local Territorial veterinary officer, or failing one having been appointed in the district, from a local veterinary surgeon, to attend all the horses owned by the unit whenever called upon, and to provide all necessary medicine for a fixed fee of 17s. 6d. per horse per annum.

In applying for payment for the horse the commanding officer should send to the Secretary of the County Association :—

- (1) The name of the seller and the exact amount to be remitted.
- (2) The exact amount of the expenses in connection with the purchase and delivery to the borrower.
- (3) The name and address of the borrower.

It is assumed that the Administrative Veterinary Officer or the Veterinary Officer he appoints would give their services in connection with purchasing, but that any travelling expenses will be chargeable to the Association.

It may sometimes be advisable to purchase the horses locally, though probably the best results will be secured by obtaining them from one of the large dealers who specialise on the particular class of horse required. When the requisite stamp is known, they are usually willing to collect a quantity from which the number wanted can be selected at an agreed average price.

The scheme will be far easier to work when sufficient horses are obtained. At the same time it is injudicious to purchase too many horses at first, even if 36 or 48 horses are applied for ; it would be better to use the loan gradually, buying say 12 at a time and getting that number placed in good homes before obtaining more.

CARE OF THE HORSES.

Careful supervision is especially necessary during the first year, as there will be no previous experience of any of the borrowers. People

who ill-treat or use horses unreasonably are not likely to improve, and the animal should be removed before it is too late. The attention of those in charge should be directed, not to the horses that are well cared for, but to the few which are reported as being the least satisfactory, remembering that if the horses become unfit, borrowers will not want them and difficulties will arise.

It is hoped that the military authorities will institute official regulations regarding inspection; any Territorial officer interested in the proper management of the horses under his charge would welcome his efforts being criticised and reported upon. As the success of the scheme depends upon proper supervision, the duties of those exercising it should be specified as clearly as possible, and in the absence of official regulations the following suggestions are offered:—

- (1) So soon as a horse is obtained:—
 - (a) Particulars to be entered in the Horse Register book as to: Regimental No., date acquired, age when purchased, sex, height, colour, marks, &c.
 - (b) The horse to be branded in accordance with War Office Circular Memorandum No. 413.
- (2) The staff-serjeant to inspect each horse once every week and to fill in a weekly inspection form, and immediately to notify the local Veterinary Officer (or Veterinary Surgeon) of any ailments.
- (3) The officer for the week, or the Adjutant, to sign such inspection sheets, noting what steps have been taken in case of ailing horses, or in cases where horses are found to be improperly cared for. The weekly inspection sheets to be always available for the Administrative Veterinary Officer or the Veterinary Officer.
- (4) Except in cases of special urgency the Administrative Veterinary Officer to be consulted before any horse is destroyed, cast or sold, but the Commanding Officer to have authority to take away and transfer any horse to another approved borrower under Clause 11 of the agreement.
- (5) The Administrative Veterinary Officer to inspect the horses at regular intervals as he may consider advisable.
- (6) For the purpose of the accounts of the Association, each horse to be inspected and valued previous to 31st March in each year by the Administrative Veterinary Officer, assisted by the Commanding Officer or his nominee and the local Veterinary Officer or veterinary surgeon. Such valuation to be submitted through the Commanding Officer to the Secretary of the Association.

It is difficult to lay down hard and fast rules respecting the duties of Territorial officers, especially during the winter months. It is also difficult to define which particular officer should be in charge of

the horses ; nominally, of course, it should be the battery commander, but it will often happen that another officer is more interested in the subject and is able to devote more time to it.

However, it is absolutely essential that some regular weekly inspection of the boarded-out horses should take place. In the summer months this means very little as the horses are sent in, but in the winter they would have to be visited at the stables, a duty which it would be hardly reasonable to expect an officer to undertake. It might be practicable to detail the work amongst the men, choosing those who happen to live near where the horses are stabled ; this plan, however, has objections, and on the whole it is thought best to depute the duties to the staff-serjeants, whose time at that season of the year is not fully occupied.

These duties would not be very serious ; the weekly inspection need not be a formal matter ; all that would be necessary would be to see the horse was not lame, had not a sore back, and appeared in fair condition. The whole area in which the horses are stabled would probably be covered by a two-mile radius, so with a bicycle the work could easily be accomplished. The staff-serjeant might be instructed to make a note of any particular horse each week which seemed the least cared for, so that the battery commander or other officer might confer with the veterinary officer as to what steps it was advisable to take.

It has been suggested that the Veterinary Officer should be responsible for the regular inspection and the filling in of weekly report sheets ; such duties, however, are not contemplated in the payment of 17s. 6d. per horse per annum proposed in this scheme for veterinary attendance (including medicine) when required.

The Administrative Veterinary Officer appointed to each division will no doubt not only arrange to inspect the horses periodically, but will also supervise the system of weekly inspection adopted by each unit.

In the case of lame or sick horses it may sometimes be advisable to send them to farms, but the expense of so doing would be chargeable against the replacement fund. On the other hand, it may prove better policy to dispose of them as soon as possible. No horse, however, must be cast without a certificate from the Administrative Veterinary Officer or the Veterinary Officer appointed by him.

ANNUAL ACCOUNTS.

Both for the satisfaction of the Commanding Officer, the Battery Commander, and the County Association, it is most advisable that an accurate balance sheet and profit and loss account of the working of the scheme in the various units should be prepared at the end of each financial year. If these balance sheets and profit and loss accounts were in all cases prepared on a similar basis, and submitted to the War Office, data of great national value would soon be obtained.

A suggested form of account is appended. No balance sheet is of any practical value without a stocktaking; this, as has already been suggested, might be obtained by an annual valuation by the Administrative Veterinary Officer, assisted by the Battery Commander and the local Veterinary Officer.

AN AGREEMENT made the _____ day of _____
 One thousand nine hundred and _____ BETWEEN THE
 TERRITORIAL FORCE ASSOCIATION OF THE COUNTY OF
 WARWICK (hereinafter called "the Owners") of the one part and
 _____ (hereinafter called
 "the Borrower") of the other part, WHEREBY IT IS AGREED
 that the Borrower during the continuance of this Agreement takes
 charge of and keeps for the Owners the horse which the Owners will
 forthwith provide or such other horse as they may provide in sub-
 stitution, upon the following conditions :—

1. The Borrower at his own expense properly to stable, care for, and feed the said horse, also to keep it suitably shod, while in his possession.

2. The Borrower to have the use of the horse, when not required by the Owners for the purposes hereinafter mentioned, for all reasonable work, riding or draught; but not for carting unduly heavy loads or for purposes which in the Owners' opinion would interfere with its usefulness for military purposes. The horse not to be used for more than one Military Training in the year without the consent of the Owners.

3. If the horse which for the time being is lent to the Borrower becomes, in the opinion of the Owners, unsuitable for military purposes, the Owners to be at liberty to withdraw the horse and to substitute another.

4. The Owners to have the right to have the exclusive use of the horse immediately in the event of General Mobilization of the Territorial Force.

5. The Owners, if so required by them, also to have the use of the horse for the purpose of Military Training with the

(a) For a period not exceeding 18 continuous days in each year.

Also either for :—

(b) All Saturday afternoons and one evening in each week for
 Five Months in each year.

Or alternatively to (b) for :—

(c) One occasion, either a Saturday afternoon or an evening,
 in each week for 10 Months in each year.

The Owners to give not less than one month's notice in writing to the Borrower as to when they require the horse for the purpose indicated in Clause (a), and not less than seven days in the cases of (b) or (c), but in the two latter cases such notice may be a continuing one.

6. When required for the above purposes the Owners to fetch the horse at the times they appoint and to return the horse to the stables of the Borrower.

7. The Borrower not to work the horse previously to the times he shall have been notified that it is required by the Owners to such extent as to render it unfit for military purposes.

8. The Borrower to afford reasonable facilities for regular inspection of the horse by the representative of the Owners, and also immediately to notify their Veterinary Surgeon, Mr. at of any casualty or ailment to the horse.

9. In case of the horse becoming unsound or being injured or rendered incapable of work whilst in the possession of the Owners, the Borrower, if so required by the Owners, to continue to keep and take proper care of the horse for a period not exceeding one month.

10. In case of the horse becoming unsound or being injured or rendered incapable of work whilst in the possession of the Borrower, then the Borrower to bear the cost of its keep for such period as the Owners may consider advisable ; but no claim, unless such unsoundness has been caused through negligence, to be made against the Borrower by the Owners for compensation.

11. In case of the application of Clause 9 or 10, the Owner to provide all veterinary attendance and medicine without charge to the Borrower.

12. If the Borrower becomes bankrupt or a receiving order be made against him or any execution or distress be levied on his goods, or if in the opinion of the Owners it is undesirable that the horse should continue to remain in the custody of the Borrower, the Owners to have the right to terminate this Agreement forthwith and to resume possession of the horse without notice or paying compensation.

13. The Borrower to have the option either of (a) taking out at his own expense, in the name of the Secretary of the Territorial Force Association of the County of Warwick, a Policy of Insurance for £40 in an Insurance Office approved by the Owners against the death of the horse from accident or disease, including death from or on account of glanders, farcy or other infectious disease, such Policy of Insurance to be lodged with the Owners ; or (b), of paying to the Owners, on the date of this agreement and on the day of in each successive year, the sum of £1 10s. 0d. towards their reserve provision in case of death by accident or other causes of the horse in their possession, and the payment of such annual sum shall relieve the Borrower from liability in consequence of the death of the horse from accident or disease.

14. In the event of the horse proving or becoming unfit for or incapable of doing the work for which the Borrower is entitled to use it. provided the Owners are satisfied that such incapacity is through

no fault or negligence on the part of the Borrower, then the Borrower to give the Owners two calendar months' notice in writing of his desire to terminate this Agreement and if at the expiration of such notice the horse be returned to the Owners, this Agreement to be terminated unless the Owners shall in the meantime have substituted another horse which is to the satisfaction of the Borrower.

15. Subject to determination as provided in any of the foregoing clauses, the Owners to lend and the Borrower to keep the horse for the period of years from the date hereof, and at the expiration of that period this Agreement to continue, subject to three months' notice on either side.

All decisions, discretions, and powers capable of being given or exercised by the Owners under this Agreement may be given or exercised by the Officer for the time being Commanding the
.....

AS WITNESS the hands of the said Parties :

Signed by the said Borrower

In the presence of

Signed by the Officer Commanding the
on behalf of the Territorial Force Association of the County of
.....

In the presence of

XX.

THE CAMPAIGN OF THE BOYNE, 1690, AND THE EVENTS WHICH PRECEDED IT.

By BRIGADIER-GENERAL COUNT GLEICHEN, K.C.V.O., C.B., C.M.G.,
D.S.O., Commanding 15th Infantry Brigade.

WILLIAM, Prince of Orange and Stadholder of the Netherlands, in response to the invitation of Protestant England, landed at Brixham in Devonshire on the 4th November, 1688, and his uncle and father-in-law, James II, fled to France at the end of the following month. Here he took refuge with Louis XIV; and that astute monarch, with his own objects in view, received him civilly, nay cordially, and promised him assistance.

Louis had for a long time recognized that the chief opponent in Europe to his schemes for the development of his kingdom was this same William, and he was not at all pleased when William, in the new year, accepted the crown of England for himself and his wife. The King of France saw that the only way in which to divert the new King of England's attention from himself was to engage it elsewhere in the British Dominions, and hence he urged James to land in Ireland and raise the country—which, of course, was overwhelmingly Catholic—against the new and Protestant Sovereign. Could Louis but induce William to turn his attention and his arms to this country, he would himself be free to develop his own plans in the centre and east of Europe for the aggrandizement of himself and of France. He therefore provided James with plenty of promises and good advice, a number of troops, and a limited amount of cash, and despatched him to Ireland, where he landed at Kinsale on the 12th March, 1689.

Even before James had fled to France, the Protestants in the north of Ireland were getting very nervous. The Catholic lower classes had risen in the south-west and centre, and were burning and ravaging all property belonging to Protestants. Added to this, rumours were rife of an impending massacre, like that of St. Bartholomew, by the Catholics in December. Although there was no foundation for this report, the uneasiness spread, and eventually

took shape in the refusal by Londonderry—against the wishes of its commandant, Colonel Lundy—to admit Regular troops into the town. The landing of James confirmed the determination of the North to resist all Catholic aggression, and shortly afterwards events culminated in the siege of Londonderry, which town was besieged by James' troops from the middle of April, 1689, till the end of July. After a heroic and desperate resistance, in which the garrison was reduced to almost absolute starvation, it was relieved by a small force advancing up Lough Foyle under Colonel Kirke. But even before the siege began, William had recognized that James' presence and actions in Ireland constituted a grave danger to his throne and the Protestant succession, and was making great efforts to raise an army with which to oppose him. Nearly all the English fighting troops were at that time in Flanders. Fresh regiments had, therefore, to be raised, and the word went forth in March to form sixteen fresh regiments of foot and four of horse for service in Ireland.

The men were recruited everywhere and anywhere, and of the English army which was eventually formed under Marshal Schomberg, nine-tenths came from behind the plough or the counter and had never seen a musket in their lives. Willing enough youths they were, but they were totally untrained, were extremely badly armed, and were hardly clothed at all.

Six weeks were sufficient for the actual raising of the regiments; but though Londonderry and Ulster were crying for succour, much delay was inevitable.

Many officers were still Jacobites at heart, and time was necessary in order to provide nothing but Williamites. There was no organization available for transport and supply duties, and, as we have seen, even the arms, clothing, and equipment were deficient; the muskets available in the Tower were so few and so badly made that William had to send to Holland for more; there were next to no horses or harness for the artillery, and the guns left much to be desired. Things were, however, hurried as much as possible, and eventually the forces took some sort of shape.

The greater part of the army arrived at Chester during July, and after an attempt at training were despatched from Highlake by sea. But the provisions were poor and the transports were ill-managed. So bad, indeed, were the embarkation and stowing arrangements, that one regiment of horse (now the Bays, or 2nd (Queen's) Dragoon Guards) lost every charger and troop horse on the passage. The result of this disorganization was that all was confusion, and that every detail in every department required the personal supervision of the Commander-in-Chief.

And now a few words about this same Commander-in-Chief. Frederick Hermann, Duke of Schönberg (generally termed Marshal Schomberg) was by birth a German of the Palatinate. He had,

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however, like many of his countrymen, joined the service of France, and had learnt his business in his younger days under Condé and Turenne. For many years he had served Louis XIV, but on the latter beginning his persecuting policy against the French Huguenots, Schomberg had resigned his command and high position in the French Army, and at the age of 70 had begun his career anew. Knowing his high reputation, William III had attracted him into his service, and had now confided to him the direction of this expedition.

The old Marshal had succeeded in making himself wonderfully popular in England. His manners were charming and courteous, he was well-informed about almost every subject, he could talk English well, his seat on a horse was remarkably good, and he had a very high reputation as a soldier. So much, indeed, was he admired by all that no jealousy was aroused at his appointment, and the House of Commons was actually moved to grant him £100,000, for which he returned thanks at the Bar in a most graceful and tactful speech.

On the 13th August this ablest of the Williamite generals, after a smooth and favourable passage, disembarked at Bangor (co. Down) with 20,000 of his men. A few days afterwards 3,000 more troops arrived, but Schomberg was already on the warpath. Without awaiting their arrival or that of the armed colonists and the regiments under Kirke's command, he sent the 12th Foot ahead to reconnoitre, and on the 17th August, after pushing 300 men on to occupy Antrim, he moved to Belfast. Brigadier Maxwell, commanding the scattered forces of the enemy in this district, did not dare to make head against him, and withdrew via Belfast to Newry, leaving a couple of regiments under McCarthy More to hold Carrickfergus.

The situation in the north of Ireland was at this moment all in favour of the Protestants. Derry's magnificent resistance of 105 days had shown James the sort of spirit that he was likely to encounter in Ulster; the gallant little town of Enniskillen had been victorious in its rough-and-tumbles with the enemy during the summer; and in the two battles near Newtown Butler on the 31st July, 2,000 of the Enniskillens, under Colonel Wolseley, had earned undying glory by killing or capturing more than half of Lord Mountcashel's (McCarthy's) 6,000 men who had vainly tried to oppose them on the bogs near Crom Castle. Ballyshannon on Donegal Bay was still holding out, but in the north-east the Jacobites only held Carrickfergus, Charlemont, and Newry.

The only other troops besides these garrisons between Schomberg and the capital were 1,600 men under the Duke of Berwick, who were moving towards Newry, and four regiments of foot at Drogheda. At Dublin itself James was making strenuous efforts to collect fresh troops; but he was short of arms and cash, and the Catholics were not as responsive as he had been led to expect.

The outlook for the Irish army was, indeed, at this time rather dark, for, in addition to the disaster at Newtown Butler, it had been well-nigh disabled by the length of the unsuccessful siege of "Derry," where the loss of men by fever, ague and dysentery alone had run literally into thousands. By all that had hitherto occurred the confidence of the Irish in themselves, their leaders and their allies, had been greatly shaken; and had Schomberg only pressed on now with vigour he would, on the authority of Berwick himself, have encountered little or no resistance before reaching Dublin. But then Berwick knew nothing of the Marshal's supply difficulties, which were already beginning to loom large in the foreground.

Schomberg dallied for eight days or more over the siege of Carrickfergus, and employed 12 regiments in reducing it. The garrison made a very fair defence, and by the terms of surrender (26th August) were permitted to march to Newry. We may note, however, that Schomberg had some difficulty in getting his own orders carried out, for the population was desperately hostile to the garrison, and on the latter marching out of the town the country people fell on the unfortunate soldiers and stripped them. They were, indeed, with difficulty prevented from massacring them as well.

On the 2nd September the army marched from Carrickfergus via Lisburn, Dromore, and Loughbrickland on Newry. The Enniskillen Horse (12 troops under Wolseley), together with the 5th and 6th Enniskillen Dragoons (each six troops under Wynne and Cunningham), had lately arrived, and great was the curiosity among the English regiments to see these renowned troops. Every one expected to behold a perfectly equipped and drilled body of men, but much to their astonishment there rode into camp three regiments of Volunteer Irregulars—very irregular indeed. Some were on big horses, some on little ones, some furnished a fair imitation of a trooper, others had nothing military about them but their arms, carried and stuck about them anyhow. Most of the privates also had servants riding behind them on country ponies. They may have been workmanlike looking, but they were very far from the beau ideal of the gay sabreur. The 27th Enniskillen Foot under Tiffin, and five¹ more so-called regiments of Enniskillens and Derry men looked much the same on foot, but after they had been rigged out in uniform coats—they wanted red, but they only got grey, both horse and foot—they presented rather a smarter appearance.² Their ideas of discipline were, however, still in a somewhat rudimentary stage, for when some of them on advanced guard were asked by an inquisitive chaplain why they did not go forward to drive in the enemy's outposts, which were in sight, two of them answered that they would be

¹ Only one (Mitchelburne's) came to camp at Dundalk.

² As a matter of fact, when it came to fighting they generally took off their coats and fought in their shirtsleeves.

delighted to do so, but, much to their disgust, they had actually been given orders against it, and, they added, "You know, as long as we have to obey orders, we shall never get on at all."

On the approach of the English Army³ the Duke of Berwick abandoned Newry and retired, destroying and setting fire to every place which he passed through. Schomberg accordingly sent him a message to say that if this was persisted in he would give no quarter to his men, a message which brought Berwick to a more humane and sensible frame of mind. Schomberg then pushed on over a ruined and charred country to Dundalk, and on arrival (7th September) proceeded to put his troops into camp. This he accomplished by pitching it north of the town in two lines on low, marshy ground at the foot of the hills, the river covering the front and a sea inlet the left. The right flank was secured by a line of entrenchments and by Bellew Castle, and surrounding almost the whole was a ditch 8 feet broad and 6 feet deep, with redoubts at the right angles and guns on the high ground inside the camp.

Meanwhile great discussions were going on at James' Headquarters at Drogheda—where that monarch found himself with 22,000 men—as to the future plan of campaign. His Commander-in-Chief, Rosen, was, as usual, for withdrawing to the line of the Shannon and fighting a delaying and defensive campaign; but James overruled him, and, knowing the up-and-down temper of his Irish Allies, was for drawing Schomberg out of his camp at Dundalk and attacking him outside.

The King's decision on this point was accepted, and was confirmed a day or two later in a way that he did not at all appreciate, for about this time Colonel Lloyd, with barely 500 Enniskilleners, surprised and routed at Sligo a force of about 4,000 men under Colonel O'Kelly, with a loss to themselves of only 14 men, whilst of the Irish they slew some 250, and captured 300, besides 8,000 head of cattle. So pleased was Marshal Schomberg at this news that he paraded all the Enniskilleners in camp at Dundalk, and rode down their lines with his hat off.

It was, however, one thing to decide on drawing Marshal Schomberg out of his camp, and quite another one to do it, for the old man refused to budge. His supplies were, as we have seen, extremely short; in fact, his troops were almost starving even before they arrived in camp, and though his ships were still handy and were not attacked, the hopeless bungle of commissariat arrangements prevented the proper amount or varieties of stores from being supplied by them. The head of the Supply Department was Mr. Commissary-General Shales, and though he had collected plenty of bread and meat and

³ Total army: 1st, 2nd, 5th, 6th, 7th Dragoon Guards, 5 regiments horse, 4 regiments dragoons, 12 regiments infantry, 18 irregular infantry regiments (including 2 Dutch and 3 French), of which 2 horse, 1 dragoon and 6 foot regiments were not at Dundalk. 14,000 altogether at Dundalk.

ammunition at Belfast, he had been given no transport to carry it on, and the country had been ravaged to such an extent that he could collect no carts.⁴ And when he tried to commandeer the artillery horses for the purpose, the gunners refused, although there was absolutely nothing for their horses to do. They were overruled by the Marshal; but even then, with food waiting for the troops on board the ships and almost in sight, it was next to impossible to get hold of it because of the jealousy of the naval authorities. The store ships were at the Commissary-General's disposal, but they were under a separate naval department, which refused to take orders from the military authorities, and the multiplication of red tape and obstructive departments became intolerable.

Meanwhile, the troops literally starved. Sickness and fever broke out⁵ in what was, no doubt, a most unscientific camp, and the mortality was frightful. There were bandages and amputating instruments galore, but as for medicines nobody had thought of them. Surgeons had been provided at 4s. 6d. a day, but the only people responsible in any way for keeping the troops in health were apothecaries, each receiving the magnificent salary of 1s. per day and at the rate of one per regiment.

The weather grew colder and damper, and James' army paraded 21,000 strong, almost within gunshot of the camp. But Schomberg, with half his men down with fever and starvation and the other half ill-armed, barely clothed and wholly untrained, was not such a fool as to come out and meet him. In vain did Rosen try to induce James to attack. One vigorous assumption of the offensive and Schomberg and his troops would have been swept into the sea; but no, the king refused absolutely to risk it—a battle of 21,000 against some 10,000 half-starved and insubordinate recruits—and wandered off in a north-westerly direction.

In Dundalk Camp forage was so short that the cavalry had been sent away into County Down. Musketry was tried in camp, but it only resulted in several people being killed, and had to be stopped. Hardly one of the men knew the butt from the muzzle, and it was considered quite a feat to succeed in firing off the piece; what happened to the bullet no one knew or cared. Added to this the muskets were bad and broke perpetually; the shells were badly cast and insufficiently filled, and the few guns were crooked and dangerous to use. Nor, as we have seen, were the troops properly clothed. There was not even a single greatcoat in the force, and a large proportion of the men had no shoes, nor had the horses.

⁴ It was, however, whispered that he had been given horses and carts in Cheshire, but that he had let them out to farmers there and pocketed the proceeds.

⁵ Marshal Schomberg was convinced that some of the late defenders of Derry who were present gave them the fever. It is much more likely, however, to have been due to the insanitary state of the camp.

A review was held on the 28th October, 1689, and the reports rendered thereon are painful reading. Many of them, I regret to say, ran somewhat as follows, "hardly any good officers and an entire absence of good order; clothing not good, but the Brigadier expected to work reforms." The 18th Royal Irish were by far the best regiment there. Other regiments get a rap over the knuckles: "Colonel always drunk;" "Subalterns know nothing about their companies;" "Colonel dead, and his brother, second in command, never there;" "Much bad company, debauchery and drinking;" "Officers incapable and so greedy that the men can scarce get paid," and so on. No wonder the poor old Marshal was afraid to move.

Another unpleasant incident was the discovery of treachery among some of the French troops; but this was speedily nipped in the bud, and the ringleaders shot.

It was, hopeless, however, to get the men to help themselves—Dutch and French and Ulstermen set to, built themselves huts, drained them, and escaped infection to a large extent; but the English soldiers sat there cursing and complaining, did not know how to help themselves, and when shown would not take the trouble to do so. So they died like flies.

But the worst feature was the hopeless want of arrangements for the sick. There was no hospital and no medicine, and the behaviour of both officers and men was disgraceful. "The lions of Africa," wrote one observer, "are not more barbarous than some of our officers to the sick." "I never saw officers more wicked and more interested," wrote Schomberg (for they let the men die in order to draw their pay and put it into their own pockets). The men became insubordinate and callous, and grumbled when the corpses of their comrades were removed, for they used them as seats, or to stop up the draughts under their tent walls; and many other wretched stories are told of this time of *débâcle*.

Added to these miseries Schomberg could get no money from the Treasury official, one William Harbord, M.P., who cheated, robbed, screwed, and jobbed to an outrageous extent. He actually managed to draw pay for a whole independent troop of cavalry under his own command, when he knew that the only members of it were himself and two clerks! Some slight consolation is afforded by the fact that he was knocked down and robbed in broad daylight by a few outraged Enniskilleners; but his plundering proclivities continued shamelessly to the end of the campaign. He callously admitted afterwards that had he granted the two hospitals that Schomberg had been perpetually begging for, two-thirds of the men's lives would have been saved.

As a matter of fact over 6,000 out of 14,000 died, both at Dundalk, on the way to Belfast, and in hospital at Belfast itself. And this, we may safely say, was entirely due to the want of system, of

organization, and of financial principles which prevailed when this unfortunate army was despatched from England.

The only consolation to Schomberg was that James' men were dying with almost equal rapidity between Ardee and Drogheda, so that they were forced to go into winter quarters early in November.

Schomberg followed suit on the 5th November, and retired without molestation to a line running from Lough Erne viâ Newry to Belfast.

Meanwhile, people in England were not at all satisfied at the result of Schomberg's action. He had taken 15,000 men into the field, and now, after three months and no victories to speak of, he had only some 7,000 left. A scapegoat was looked for, and Mr. Commissary-General Shales was hauled over to England to answer for his delinquencies. His fate is of no further interest to us; it was not a very serious one, and it is questionable whether he was even as bad as the other harpies and contractors who filled their pockets by starving the British soldier, for although a certain amount of money, no doubt, stuck to his fingers, his incompetence as an organizer of supplies and transport seems largely to have been due to the parsimony and unbusinesslike policy of the Treasury.

William, in order to calm public opinion, now announced that he would shortly go to Ireland and place himself at the head of a reconstituted army; but circumstances made delay inevitable, and it was another 6 months before he set foot in the island. Meanwhile, however, troops and stores were poured into the north of Ireland, and the commissariat and transport arrangements were reorganized and set on a greatly improved footing.

During the first few months of 1690 little happened in the direction of hostile operations. The English frontier extended, at the beginning of the year, from Lough Erne along a string of small garrisoned posts to Newry, and efforts were made to extend it further south pending the arrival of the main army.

Colonel Wolseley began in February by surprising and occupying Belturbet, a small town some 7 miles from Cavan, upon which Colonel O'Reilly, commanding about 2,000 Irish in Cavan, called upon Berwick for a reinforcement of 1,700 men, and made arrangements for retaking Belturbet. Wolseley, however, got wind of this plan, and though he had but 1,000 men (including 300 Enniskillen Horse, the 2nd Queen's, and the 12th Foot), he determined to strike the first blow, and advanced on Cavan. Here his Horse were thrown back in confusion by a charge of Berwick's Cavalry; but, rallying on the infantry, they advanced again all together, poured in a heavy fire on the Irish Foot, and drove them helter skelter from their position. The English then entered Cavan, burnt the Irish stores, and took great quantities of loot, with a loss of only some 30 men; whilst the enemy were scattered and fled in all directions, leaving 10 officers and 300 men on the field, besides 200 prisoners.

In April followed the investment of Charlemont, the only so-called fortress in Ulster remaining to the Irish. La Caillemotte and his French Huguenots were despatched by Schomberg on this task, and had little difficulty in effecting the reduction of the place, for there were but 300 men inside (under the command of a curious old ruffian, called Tighe O'Regan), and even for them provisions were short; and when, much to O'Regan's delight, a Colonel McMahon arrived with a supply of provisions, escorted by 500 men, La Caillemotte was wise enough not to oppose their entry into the town. So that the supplies which might have lasted the small garrison for several weeks rapidly diminished under the onslaught of 500 extra men; and the town, starved out after a very creditable defence, was obliged to surrender with the honours of war.

Besides these two small victories, the English were fairly successful in raiding into the neighbouring districts in order to increase their supplies of food and forage, and on one occasion they overran the country as far as Dundalk, whence they returned with 1,500 cattle. The Irish also had not been behindhand, and irregular bodies of Rapparees (so-called from the half-pikes with which they were armed), made perpetual incursions into the English lines. But on the whole the fighting was not severe, and the main result of the raids was that the country between Belfast and Drogheda was burnt and ravaged to such an extent, that in the subsequent campaign there was hardly anything at all to be obtained from it in the way of supplies.

As for the discipline and training of the English Army, these had greatly improved by the time that William arrived, and the force that greeted him was a very different one from that which had in the previous year been pitchforked into Ireland under Schomberg's command.

On the other side James was desperately hampered by want of money and supplies. Thousands of men came pouring in to fight under his standard; but they were mostly wild and untrained peasants, badly armed and insubordinate. These qualities might have been remedied in time, for the spirit was all right; but there were no large manufactories in Ireland, and nearly all the supplies, clothing, equipment, and ammunition had to come from abroad. Consequently, as James had but little cash, and could only pay in promises and a brass currency which no foreign merchant could accept,⁶ it is not surprising that he was obliged to turn elsewhere for assistance.

Louis XIV had, however, no idea of supporting James to any serious extent. He knew the value of money, and as his one policy, as we have seen, was to keep William occupied in Ireland for the next year or two whilst he pursued his own schemes of aggression on the

⁶ It was made out of an old brass gun that Louis XIV had given him.

Continent, it did not suit his book to assist James to the extent of setting up a shaky Kingdom in Ireland whilst William was still loose in England. He therefore merely sent him 7,300 men, well trained and equipped it is true, but without the money to keep them in the field for very long, and in exchange for these he made James send him an equal number of Irishmen.

Neither was James more successful in other directions. His Commissary-General, Lord Dover, was incompetent, and had collected no supplies worth mentioning nor formed dépôts for them. The staff work was bad; organization was at a discount; officers quarrelled among themselves and, as was the custom of those days, sent in fraudulent "states" in order to draw and put into their own pockets pay for men who did not exist.

Moreover, the only properly organized "field train" (including artillery and ammunition)—a French one sent by Louis—got no further than Cork through want of transport, for the worthy peasants of the south, objecting strongly to the French methods of requisitioning animals and supplies without paying for them, drove off all their horses and oxen into the hills, and left the field train without means of moving.

The numbers, however, grew. A list of King James' troops, furnished by Marshal Schomberg the year before, gave a total of over 54,000 men; but these included the Jacobite troops, Regular and Irregular, all over Ireland. It is very difficult to state the numbers at any time with accuracy, but it is believed that the forces which eventually took the field for the campaign of the Boyne numbered, on the Irish side, about 30,000, and included some 15 regiments of horse and 34 regiments of foot, besides 8 or 10 independent troops and companies, mostly mounted.

The Duke of Berwick was in command of most of the cavalry, or at all events of the main advanced guard. Brigadier-General Patrick Sarsfield, a huge, dashing, and popular Irishman, commanded the remainder of the Irish cavalry. He had just been made Earl of Lucan, chiefly in deference to his popularity; but whatever his admirers may say, he seems to have been rather wanting in brains. Of other commanders the most noticeable were Lord Tyrconnel (late John Talbot), James, Lord Lieutenant of Ireland, an intriguer and fairly capable administrator, but no soldier; and General Richard Hamilton, William's ex-envoy, who had, after a period of considerable indecision, eventually thrown in his lot with the Jacobites.

The whole army was under the command of the French Duc de Lauzun, a soldier far inferior not only to Schomberg, but also to his own predecessor, Count Rosen. Nor was it likely that Lauzun would put much spirit or determination into his troops, for when he arrived at Cork to take over command, the retiring French Ambassador with James, the Comte d'Avaux, sourly informed him that he had "come

to be a sacrifice to a poor-spirited and cowardly people, whose soldiers would never fight, and whose officers would never obey orders." In support of this view of d'Avauz we may note that Lauzun has left it on record that the state of things in Dublin on his arrival was like the chaos mentioned in the book of Genesis, and that for nothing in this world would he repeat the experiences of his first month there.

We must now turn to William's army and take a rapid glance at its numbers and composition.

Jacobites often asseverated in those times, and their descendants do still, that William's army was not an English one at all, and that he beat James with an overwhelming force of excellent foreign troops, among which there were hardly any British. Now, it is true that Dutchmen, Frenchmen, Danes, and Germans were largely represented in the Williamite forces, but as a matter of fact by far the greater proportion was English, pure and simple. They numbered, indeed, 21,000 out of 37,000, and were largely responsible for the issue of the battle.

The Dutch troops under General Ginckel amounted to about 6,000, of which 3,700 were Foot, including the celebrated Blue Dutch Guards of the king. Of French Huguenots there were but 2,600; but these were even more bitter against the Catholics than the Enniskilleners themselves, for most of them had been driven from their country by the revocation of the Edict of Nantes, and had lost not only their fatherland, but their property as well, for their religion's sake. Caillemotte and La Melonière were in command. Next came a mixed contingent of Danes and North Germans, 5,400 good stolid fighters and well trained, but of no very great interest—these were under Count Solms and the Dukes of Nassau and Würtemberg. Lastly came the English, numbering 3,000 horse (7 Regular and 4 irregular units), 1,270 Dragoons (4 regiments, including the 6th Enniskillen), and 17,000 foot (16 Regular and 9 irregular regiments). Chief among their officers were Lieut.-General Douglas, Sir John Lanier, and Major-General Kirke, of Sedgemoor and Tangier fame.

The whole army was formed in about 12 brigades, varying in strength from 3 to 8 regiments—the 5 horse brigades numbering about 1,500 men, and the 7 infantry brigades averaging about 3,600 men apiece. King William was, of course, in chief command, but his technical Commander-in-Chief was Marshal Schomberg, a duplication of command which was not entirely satisfactory, as we shall see later.

The strategy of the ensuing campaign was simple. The advice given to James by Rosen (Lauzun's predecessor) was always to retire into Connaught and defend the line of the Shannon. There were obvious advantages to be gained from this course of action. There were fortified towns along this chain of rivers and lakes—the hills

of Connaught would offer an excellent country wherein to entangle and destroy an army piecemeal, supposing it had forced the passage of the river ; and the sea offered facilities for the landing of supplies. No wonder that Louis' nominee was anxious by these methods to delay and entangle the English king in these wilds ; it would have been carrying out his master's policy to the utmost.

James, however, would have none of it. He considered that offensive action alone would suit the peculiar temper and talents of his Irish soldiery, and that to put them on the defensive would only cause a gradual diminution in his army and much discontent at surrendering the country east of the Shannon. He therefore determined to march and meet William, and to risk all on the issue of the first battle.

As we have seen, William arrived in Ireland in June. The date was the 14th and the spot was Carrickfergus. Although the arrangements and discipline among this new army of his were infinitely superior to those of the rabble handed over to Schomberg in the previous summer, William was not pleased, and on landing proceeded to rate his officers for their slowness, and to hustle them considerably, saying that whatever they might think, *he* was not going to let the grass grow under his feet. He made perpetual and minute inspections, organized the force into brigades, as we have seen, and on the 19th issued orders to concentrate. Two days afterwards the concentration began at Loughbrickland, near Newry, and by the 22nd it was practically complete.

To meet this movement King James concentrated at Ardee, advanced to Dundalk, and occupied the high ground near Newry with detached forces. There were skirmishes between the two advanced parties, neither having much idea as to the numbers of which the other consisted. On learning, however, through a prisoner that William was present in command of a splendid force, James considered discretion to be the better part and retired to Ardee, where he was joined by some 8,000 French and artillery.

William, on learning of his retreat, moved his forces (27th June) to Dundalk, and was there joined by further reinforcements, his fleet moving parallel with the coast. James continued his retirement to Drumlane, and on the following day crossed the Boyne. William pursued, and moved his army to a point a few miles south of Ardee.

It is difficult to tell the exact line on which his army moved, for there were (according to the best maps of the period) hardly any roads between Ardee and the Boyne, and the country was practically deserted. There must have been, however, some field and bridle roads between the various villages and the remains of the numerous monasteries which had at one time existed in these parts, and the artillery and train probably moved by these. We are told by a garrulous military chaplain (Story) of the day that William advanced

in three lines, but beyond this we know nothing. It is more than probable that he advanced in three columns, not lines, and that the cavalry and infantry marched straight across country, for the terrain was rolling, largely devoid of fences, and probably hard going in the summer time. Anyhow, the cavalry arrived first and the infantry next.

Leaving his army, as we have said, just south of Ardee, the King himself pushed on another 4 miles, escorted by a small force of cavalry. From here he ascertained that James was actually in position on the south bank of the Boyne, and on the last day of June he moved forward his main army a short march of 8 or 9 miles and camped opposite to James, covered by a long hill, on the northern bank.

On this morning, accompanied by in truth a gorgeous and brilliant staff, he rode along the bank of the river, making a reconnaissance in fine old-fashioned style. He could not see much of James' dispositions, for the wavy ground on the south bank covered all but the tops of the tents, and the hollows hid many more men than he could see. "Not more than about 16,000," was the general verdict: so William climbed off his horse, within a couple of hundred yards of the enemy on the opposite bank, and the whole party of royalties, dukes, princes, and A.D.C.'s quietly ate their breakfast, picnicking in the long grass.

This gay little spectacle had, of course, attracted the attention of the enemy, and, covered by a fraudulent movement of horse, they brought down two 6-pounders and concealed them in the reeds. Breakfast over, the King and his suite mounted again, but hardly were they settled in their saddles than off went these two guns. The first shot broke Prince George of Denmark's pistol in his holster and killed a trooper and his horse. The second ricocheted off the bank and hit the King on the right shoulder, tearing away his epaulette and knocking him on to his horse's neck. A yell of delight went up from the Irish, and forthwith a message was sent to James and to Dublin, and even to Paris, that the King was killed. William, however, had only lost a little blood, quickly recovered, had a handkerchief tied round the wound, and rode back to camp, showing himself to his soldiers on the way in order to quiet their apprehensions.

It is curious how popular William was with his soldiers. As a rule gloomy in appearance, weakly, with delicate lungs and peaked face, he seemed to expand when once he went on active service, the service that he loved. No day was too long for him, no trouble too great. He looked intently after the comfort of his men, and he was careful not to throw away their lives unnecessarily. Personally he was as brave a man as ever stepped, and although suffering in health, never spared himself either in action or on the march. Once on service he never entered a house if he could help it, but carried about

his own little collapsible hut, and even in the thick dust of a hot day could never be persuaded to give some relief to his tortured lungs by moving alongside in a clearer atmosphere. With it all his generalship was considerable, his power of organization undoubtedly great, and his energy terrific. His manner, though firm, was so courteous to all, that none except the shirkers disliked him. As we have seen, he was beloved by all his men.

After spending all day in the saddle and receiving reconnaissance reports from his advanced troops, he summoned a so-called "Council of War" at 8 o'clock in the evening, and proceeded to deliver his orders without taking counsel of any one.

Here we must break off the narrative in order to have a look at the country and at the dispositions of James and William for the ensuing fight.

Barely 5 miles to the west of Drogheda the Boyne, running eastwards, makes a sharp curve to the north, and then eastwards again at the little hamlet of Oldbridge. The tide's effect is felt as far as this and even beyond it; but the river is shallow, and the portion for from 1 to 2 miles east of Oldbridge is broken by several islands, and crossed by four or five fords. It was on the southern bank here that James had placed his army and fortified his front to a certain extent by putting up slight works at Oldbridge and strengthening the hedgerows running parallel to the river. The main road from these fords led due south towards Dublin, and was joined by the roads from Drogheda (3 miles to the east) and Slane Bridge (6 miles to the west), about 4 miles to the south at Duleek village, a point forming a genuine defile, not only because of the low hills to the south through which the Dublin road passed, but because the three roads mentioned led over deep bogs, and thus formed in themselves the only avenues of approach from the north.

Between Oldbridge and the bridge of Slane some small detached parties of Irish Horse had been pushed out, but otherwise James' left flank was undefended. The main position consisted of rising ground parallel to the Boyne, and at Donore Chapel James pitched his own camp so as to secure a bird's-eye view of the battlefield. His cavalry and artillery were mostly on the right wing, leaving the Irish infantry in the Oldbridge loop, supported by the French infantry on the hills in the rear.

The best, in fact the only reliable, troops of James' army were the French infantry and the Irish cavalry. The Irish foot were of a rough description, rather corresponding to the modern moonlighters—noble fellows at raiding cattle or murdering people from behind fences, or plundering farms, and full of boastfulness, but when it came to fighting Regular troops they were not "for it" at all. Oddly enough they feared the few Danish troops even more than the Regular Sassenach, for a local and ancient prophecy had foretold

their extermination yet once more at the hands of their ancient enemies. Yet these same Irishmen, who behaved so badly at this battle, were, with an admixture of a higher class, to fight brilliantly later on, and cover themselves and their country with glory hereafter, for both in the ensuing fights in Ireland and as the Irish Brigade under a foreign flag, they fought manfully and earned for themselves undying recognition.

The Irish Horse, on the other hand, were largely composed of gentlemen and yeoman farmers, and their magnificent courage on this day went far to atone for the despicable action of their comrades on foot.

It would seem fairly obvious to any one in the position of both William and James that the bridge of Slane was a most important point, and that its possession should be secured at all hazards at the very first opportunity. Yet neither of them seemed to see this, and it was only after considerable pressure from their subordinates that either of them condescended to pay attention to it. James had not sent any artillery there, nor fortified it in any way, and it was only at the last moment that he consented to its occupation by a weak regiment of Dragoons under Sir Neil O'Neill. William also, though his cavalry had reconnoitred it, did not attribute to it the importance that it undoubtedly deserved. Perhaps he thought it was too far off, or that with several fords over the river it was not of first-rate importance: whatever the reason, he did not approve of Schomberg's proposal to seize it overnight with a strong force, and he decided to make his main attack on the centre, with—but this is kept to himself—a subsidiary attack on James' right, not left, flank. Very indignant at having his opinion flouted, old Schomberg retired to his tent in high dudgeon, muttering that it was the first time that he had ever received orders since he had commanded an army in the field.

On reflection, however, William seems to have thought better of the Slane Bridge factor, for at dawn of the following morning he issued orders for the cavalry of the right wing, under Count Meinhardt Schomberg (son of the Marshal), together with a brigade (Trelawny's) of four regiments of infantry (8,000 men in all) to proceed at 6 a.m. to Slane Bridge, seize it, and try to get behind James' left flank at Duleek.

The morning of the 1st July (not 12th)⁷ broke as that of a perfect summer's day, and before the sun was well up both armies were on the move to take up their positions. It was going to be a fine old-fashioned battle—hammer and tongs—and the best man wins; yet before the first shot was fired the result was really almost a foregone conclusion. James, sitting in the little cemetery of Donore Chapel,

⁷ The 12th of July, which is annually celebrated by the Protestants of Ulster, is the anniversary, not of the Boyne, but of the battle of Aughrim.

well away from the bullets, must have felt this acutely. He was by way of fighting for his kingdom, yet he knew perfectly well that he himself was only half-hearted about it. Four times had his plans been changed during the last week. Even after selecting his position on the Boyne he had changed his mind, and actually given orders to retreat on Dublin; and then he had changed his mind again and stuck to it. Lauzun, the Commander-in-Chief for whose appointment he had intrigued and worried Louis almost beyond endurance, was, as he must have known, a poor soldier and a poor substitute for Rosen. His grey foxy face and rather cringing stoop were not the outward and visible signs of a great commander, and, as James well knew, his heart was not in it either. How could it well be? The French troops were good, but there were only about 8,000 of them. The Irish officers on the staff were greedy, quarrelsome, and incapable; jealousies were only too palpable on every hand; and though the Irish cavalry was gallant and determined, even they were too noisy to inspire much confidence; whilst the Irish foot was beneath contempt—it was not even well armed, and it certainly was not disciplined. No wonder that James' heart sank. He was not the man to hurl himself into the breach for the sake of a declining cause, even though the cause were his own. He knew that on the other side of the river was a well-organized, numerous, and active enemy, animated not only by a thorough military spirit, but also by a thorough religious hatred of himself and everything that he represented; and his courage failed him. As a rule he was not a coward, and he had before this shown proofs of personal gallantry. But things were too much for him on this occasion, and there is no doubt that, as the conflict progressed, he heartily wished himself far away from the field of battle.

We might remark, *en passant*, that so alike were the uniforms on both sides that, to distinguish the forces, William's men all wore green twigs in their hats, whilst the Jacobites sported in their head coverings a white cockade or a patch of white paper.

William's main attack did not begin till about 10 o'clock. Long before then his cavalry on the right flank had secured the bridge of Slane, charging O'Neill's Dragoons, scattering them, and killing their commanding officer. Meanwhile Count M. Schomberg had discovered a ford at Rosnaree and sent his infantry and some cavalry across. De Lauzun, to whom all this was more or less visible from the high ground, recognized that his left flank was going to be turned, and he despatched the whole of his Frenchmen to the rescue, Meinhart Schomberg saw that he was in for a heavy fight, and in his turn asked for reinforcements. William had, however, already made provision for such a request, and two infantry brigades, under General Douglas, were already on their way. In this direction, however, the English force was doomed to some disappointment, for

when they tried to advance towards Duleek they found the road was barred by the French, and the country impassable by reason of a large bog which stretched between them and their enemy. Here they remained gazing at each other for a considerable period, and it was not until later that the English attempted a genuine attack on this side.

This flank movement had, however, an important influence on the fate of the battle, for James became more and more nervous, and at last withdrew about 9 o'clock the whole of his reserve in the direction of Rosnaree. He thus weakened his centre even before it was attacked, and left only nine regiments of Irish infantry, together with most of the Irish Horse, to withstand the powerful onset by the remainder of William's army on this vital portion of the position. At this time, however, James seems to have been convinced that all the main fighting was going to take place on his left. He was soon to be badly undeceived.

From 9 to 10 o'clock the English artillery had been cannonading the Irish works at Oldbridge, and at this latter hour William, hearing that his right wing was well across the river, gave the signal for the main attack on Oldbridge, himself riding off to the left flank, where he proposed to carry out in person his own private plan of turning James' right flank as well as his left.

[Those who wish to study the detailed positions of the Allied troops will find them in Clifford Walton's *History of the British Standing Army, 1660-1700*. It is not very profitable to follow every movement in detail, for after an hour or two's fight all the units got so thoroughly mixed up that it would be impossible to sort them out again.]

The first to cross the river were the Dutch Guards on the right. They walked into the water up to their armpits 10 abreast, and were closely followed on their left by the French Huguenot Brigade. These were supported by the Enniskillen and other Ulster Foot, and on their left came the Danes and Germans. Most of the British Regular troops who had not gone to the right flank were in support of these or on the left, the remaining cavalry being on the left flank.

The firing became fast and furious, but after a few minutes the Dutchmen and French, after losing heavily in the water, reached the opposite bank and charged the breastworks. James' Irish Foot Guards were the only ones who stood fast, and in spite of every effort on the part of their officers, the remainder of the Irish Foot began to retire—even the supports, who had not yet been engaged, beginning to give way.

At this moment there was a gallant charge by the Irish Horse. Led by Richard Hamilton and Parker, they burst on to the left of the French (Caillémotte's) brigade, killed its leader and threw it into disorder. Another charge was made at the same time further to the east, which hurled the Danish cavalry back on to the English troops

in the rear. Even these were thrown into some confusion ; but the 11th foot stood fast, and the Danes rallied on them. Just at this moment, indeed, when it was of vital importance to advance, the Allied infantry were checked and made no progress. A cry arose from the ranks of the infantry for "Horse! Horse!" *i.e.*, for fresh cavalry wherewith to meet the Irish mounted torrent ; but there were none at hand, and, worst of all, the cry got taken up as "Halt! Halt!" and the whole army, including even Douglas' troops on the far right, stood fast accordingly in its tracks.

At this juncture old Marshal Schomberg, seeing that the moment was critical, forced his way to the front. Without waiting to put on his cuirass, he placed himself at the head of the leaderless French troops and encouraged them to turn on their "persecutors." They rallied to him, and pressed forward again with loud yells. But the rally was dearly bought, for in another moment the old Marshal pitched off his horse, shot through the neck, dead. As they passed a few Irish troopers cut at his lifeless body and wounded him in the head ; but it was useless, the bullet had gone in at the side of his neck and out at the top of his skull.⁸

Bishop Walker, the gallant defender of Derry, was also killed about this time, for, being endowed with a warlike spirit, he pushed forward to encourage his countrymen in their need, and paid for his gallantry with his life.

The troops now began to recover from their disorder, formed fresh lines again, and moved forward. After a stiff fight in the village the Irish Guards were forced to retire, almost deserted by their comrades ; but the Foot rallied a little, and formed up in line along a ridge parallel to and about 300 yards from the river, to await the re-organized advance of the Allies. This was about 11.30 a.m.

During this time William had been very busy on the left. He put himself at the head of the grey Enniskillen Dragoons and led them from Drybridge towards a ford on the left that he had discovered on the previous day. Unfortunately he was not acquainted with the treachery of the Irish landscape, and cantering across a bright green meadow he and some of his Dragoons got most heavily bogged, and stuck there up to their waists in black mud. After a time, however, they got through and, supported by some Danish cavalry and an English regiment or two, they crossed the ford, the Irish Dragoons in front of them retiring "*pour mieux sauter*." The Enniskillens at once deployed and charged, but got much broken in the pursuit, and were

⁸ His body now rests in St. Patrick's Cathedral, under the altar. The intention had been to bury him in Westminster Abbey, but his corpse got no further than Dublin. Nor was it always treated with proper respect, for on some alterations being carried out at St. Patrick's 100 years ago or so, it was found that a whitewasher had disinterred the skeleton and was mixing his paints in the skull !

in turn scattered by a charge of fresh Irish Horse and driven back on the British infantry. These, Cutts' regiment in particular (then the 5th Foot but disbanded afterwards), stood fast and broke the onslaught of the Irishmen; and then the left, heavily reinforced by this time and headed by the Enniskillens, began to advance on to the right flank of the Irish Foot on the ridge.

This proved too much for the Irish nerves, and in spite of repeated and most gallant charges by their Horse, they wavered, stopped firing, and finally broke, fleeing to the rear with yells of "The Enniskillens, the Enniskillens are on us!" Such was the effect of a bad conscience.

This was the beginning of the end. In spite of all their officers' efforts the Foot broke up and ran, together at first, and then breaking up into twos and threes and hiding themselves where they could. Berwick and Hamilton collected all their horse and covered their retreat by repeated charges, even inducing them to stand again for a few minutes at Donore. But the day was lost.

The British Horse and Foot pressed on, and though Hamilton's Horse made a fine stand near Platin House, and even threw the Enniskillen Horse near here into disorder by a magnificent and final charge, Hamilton himself was taken prisoner, and his cavalry dispersed by fresh reinforcements of the French and British Horse. The Irish cavalry had behaved like heroes, and by their devotion had saved their side from annihilation by giving them a badly needed half-hour in which to effect their escape. More than this no troops could do.

To James and Lauzun, still far away on the left, were borne the tidings of disaster on their centre and right, and one can hardly blame them for their opinion that the day was lost. James did not even wait to see what happened to his troops, but fled as fast as his horse could carry him to Dublin. Here he arrived at 10 o'clock at night, and recounted to Lady Tyrconnel (once the gay and lovely Fanny Jennings) how her countrymen had run away. "Your Majesty is, as usual, first in everything," replied the lady, "and has, I see, won the race."

The French troops had meanwhile been extricated from the *débauche* by Lauzun, and had formed up to cover the retreat of the remainder through Duleek. Very well did they do it, and the mass of fleeing and disheartened Irishmen had got into Duleek and well beyond it before Lauzun gave it up. Even then the rearguard action was skilfully continued and the English troops were perpetually checked, until they gave up the pursuit 3 miles south of Duleek.

In contrasting the actions of the two leaders during the day, no one can help being struck most forcibly by the difference between James and William. Throughout the day James showed himself nervous and undecided. Had he been a man of a different stamp, what a glorious opportunity would there have been here to show the

stuff of which he was made, to have put himself at the head of the gallant Irish Horse, and to have tried to retrieve the day.

William, on the other hand, wounded, weak, and sickly as he was, had been in the thick of the fight throughout. Astir from the earliest dawn he had not only issued general directions for the fight, but had planned and personally carried out the turning of James' right flank and nearly lost his life in so doing. He had nearly been pistolled in error by one wild Ulsterman, and had had his boot-heel and pistol-lock shot away; yet, waving his sword weakly in his left hand, he had rallied the Enniskillens at the last charge of the day, and led them on to the final overthrow of the Irish Horse. No wonder he had but little energy left to pursue the enemy or to issue active orders to that effect. Dead tired, indeed, must he have been that night; and while he slept, the scared and footsore Irishmen were wending their weary way to comparative safety in Dublin.

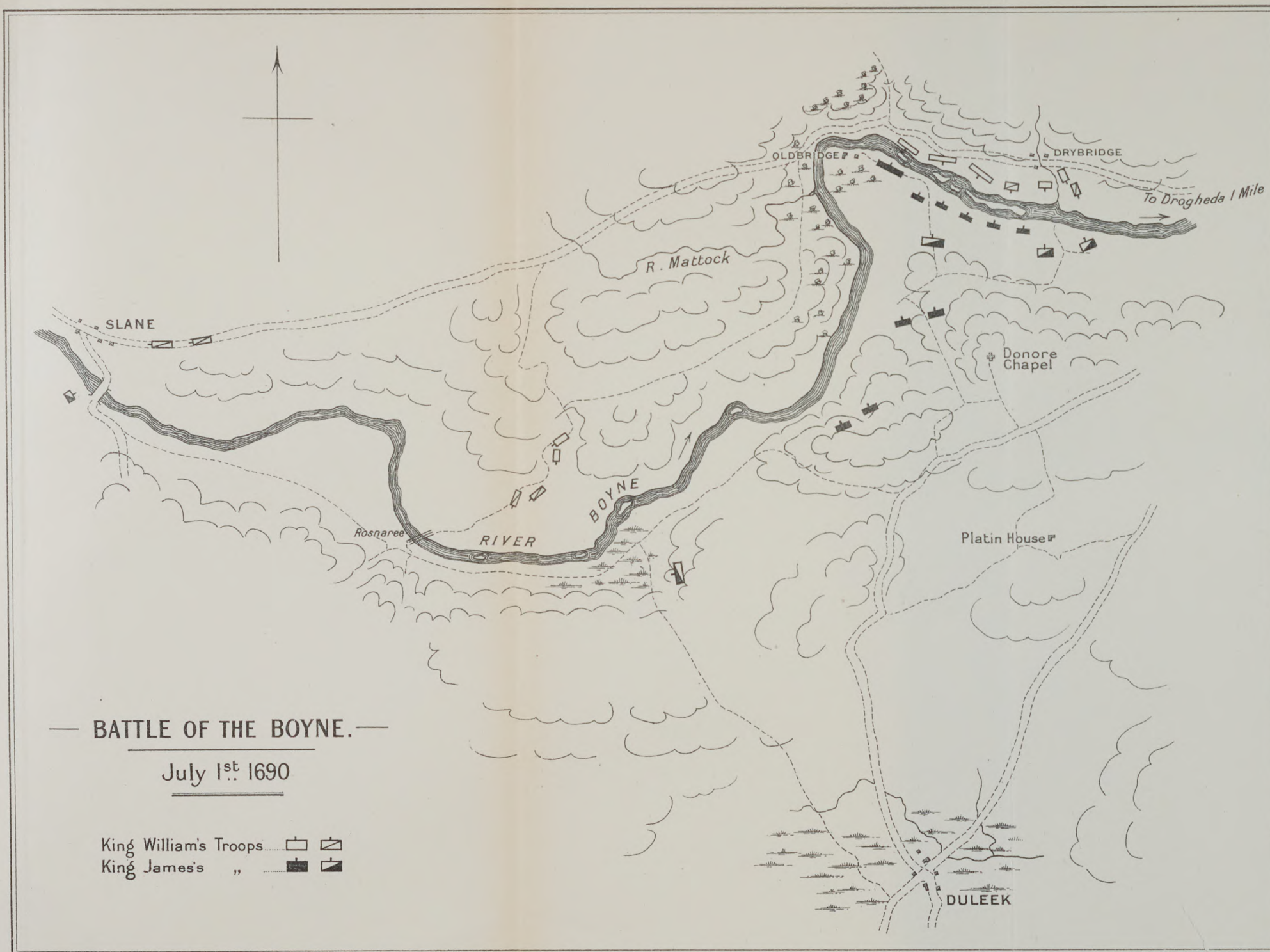
The losses are reckoned on the Jacobite side at 1,600, and on William's side as barely one-third of that number. The importance, however, of the battle was not to be gauged by the amount of the "butcher's bill." Though its importance was, perhaps, not so recognized at the time, it marked as a fact the beginning of the victory of the British cause over that of France, and put an end to the dangers with which Louis was threatening the Protestant kingdom of England. We may say even more than this: its effects, not only in Ireland but in England, have been apparent ever since those days, and it may truly be said to have given the hall-mark of liberty to British institutions as opposed to the would-be tyranny of a foreign despotism.

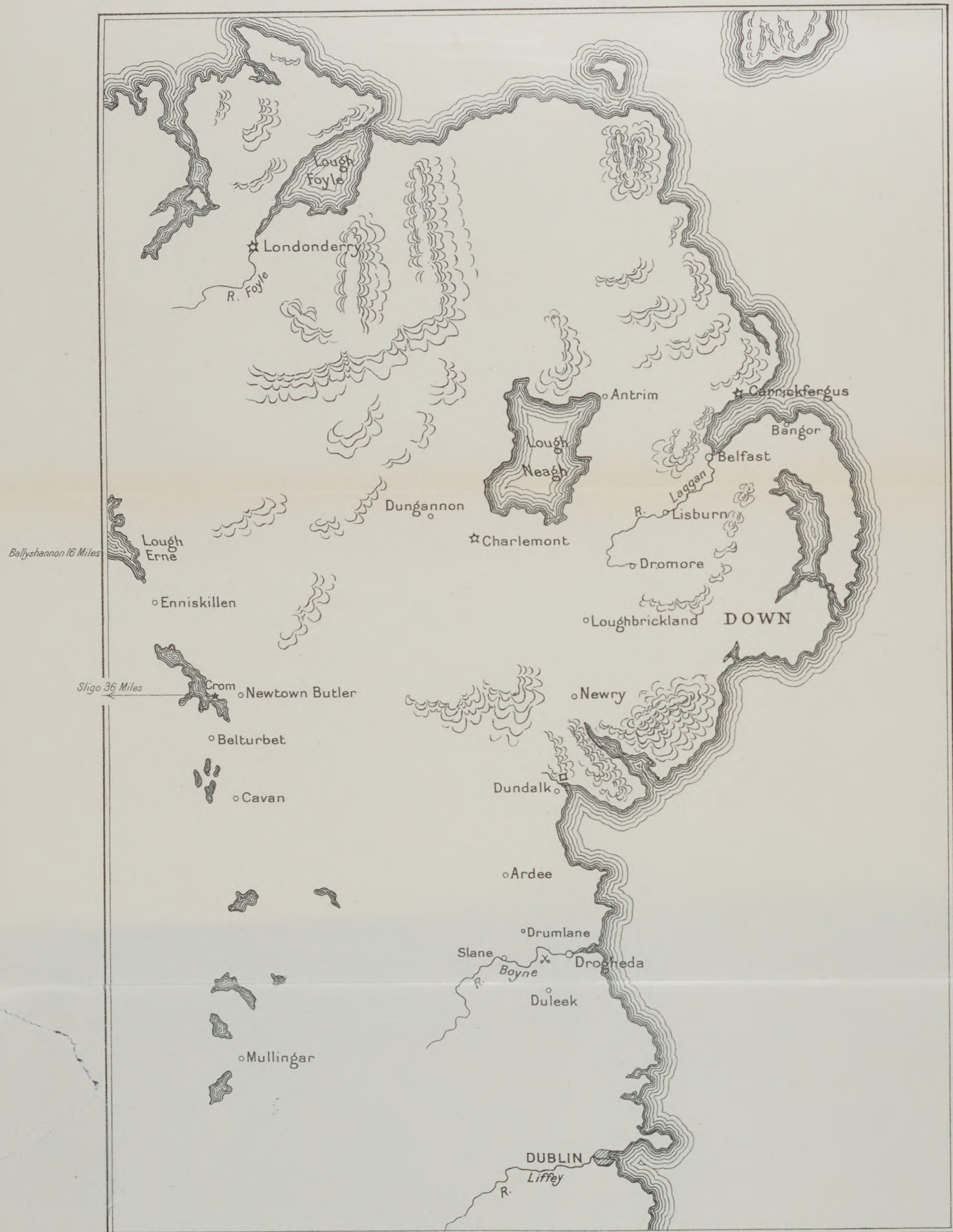
Little remains to add. Early on the following morning James made an unpleasant speech to the citizens of Dublin, in which he abused the Irish who had fought for him, and then he incontinently fled as if a thousand devils were at his heels. At sunrise of the following day (3rd July) he reached Waterford, and thence a ship took him to Kinsale. Here he found a French frigate waiting for him, so he went on board and set sail at once for Brest. Ireland was thenceforward to know him no more.

William, on the other hand, occupied Dublin and pushed his campaign southwards and south-westwards. He arrived before Limerick on the 9th August, but after several costly attempts was obliged to abandon the siege on the 31st. The Irish—largely the same who had run away at the Boyne—behaved like heroes; their exploits, indeed, rivalled those of their adversaries at Londonderry, and completely washed away the stain left on their courage by former battles. A few days afterwards, his main object gained, William returned to England.

The war dragged on for another year, and was finally ended after a desperate fight by the crushing defeat of the Irish at Aughrim (in the eastern corner of Galway) on the 12th July⁸, 1691. Thoroughly disorganized and scattered, large numbers of the surviving Irish took service abroad. In numerous lands, especially in France, Italy, and the Low Country, did they uphold for many years (both as the Irish Brigade and as soldiers of fortune) the high reputation that they had won at Limerick and at Aughrim; but never again did an organized Catholic fighting force of such strength take the field in their own country.

⁸ This date is still annually celebrated by the Protestants throughout Ulster as that of the final overthrow of Roman Catholic supremacy in their Province.





Geographical Section, General Staff

War Office, June 1912.

Scale 1 Inch to 16 Miles.

MILES 10 5 0 10 20 30 40 50 60 MILES

APPENDIX I.

RECENT PUBLICATIONS OF MILITARY INTEREST.

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REVIEWS OF BOOKS.

AERONAUTICS.

Aeroplanes at the Russian Manœuvres in Poland. (*Les Aeroplanes aux Manœuvres Russes de Pologne. Remarques et impressions d'un officier observateur.*) By Colonel Kontchevski. 38 pp., with a map. 8vo. Paris, 1912. Chapelot. 6d.

This pamphlet is a translation of the author's article which appeared in the *Voenni Sbornik* of January, 1912. Colonel Kontchevski, of the Russian General Staff, commands the 72nd Tolski Infantry Regiment. He availed himself of an invitation to act as observer with the aeroplane detachment attached to the Southern Force at the manœuvres last year in the Warsaw Military District. Six Blériot monoplanes were provided by the Sevastopol Flying School and parked at Lyublin. Colonel Kontchevski relates how he arranged his maps and sketching materials, and describes his reconnaissance experiences in detail. The aeroplanes were frequently used to ascertain the bivouac positions of the enemy. Reports were brought back to the park and distributed thence, or occasionally placed in cylinders to which a flag was attached and dropped during flight. On one occasion the party were overtaken by night, and the officer pilot descended only to find he had landed in a hostile cavalry camp. The aeroplanes were also used to carry messages from the main body to a detached cavalry force. A description is given of an unpremeditated attack made by aeroplanes on a hostile dirigible. A few minutes after the dirigible was sighted two aeroplanes rose, circled to gain height, and then flew to meet the dirigible, rising to about 1,000 feet above it. Both aeroplanes passed directly over their enemy. Photographs were taken of it from above, and within 25 minutes the pilots had returned, satisfied that in war the dirigible would have been hit by their grenades. The book is well translated, and can be recommended to all interested in military flying.

BIOGRAPHY.

Le Marechal Niel. By Major de Latour. 293 pp. 8vo. Paris, 1912. Chapelot. 2s. 10d.

Adolphe Niel, the subject of this biography, received his first commission in the Engineers in 1825. After earning promotion for gallantry

at the assault of Constantine (1836), and again for services in connection with the Paris defence scheme (1842), he was given an appointment on the Engineer Staff of the expedition against Rome (1849). The successful issue of the siege, in which he was wounded, was largely due to his skill and energy, and won for him the rank of General de Brigade and a high position in Napoleon's favour. In July, 1854, he embarked as Chief Engineer with General Baraguay d'Hilliers' expedition to the Baltic, and gave fresh proofs of his talents at the siege of Bomarsund.

The next episode of his career is the one which presents most interest to British readers. Napoleon, dissatisfied with the conduct of the war, dispatched Niel to Sebastopol with the delicate task of reporting on Canrobert's dispositions, and—there is little doubt—of eventually superseding him. Niel's reports, which were in the main justified by events, laid stress on the paramount importance of the Malakoff Fort and the need for a more complete investment of the town; but above all he considered the arrival of the Emperor necessary to restore unity to the command. Unfortunately, from the French point of view, this proposal was not acted upon.

The chapter on the campaign of 1859 shows General Niel taking a chief part in the preliminary discussions with Cavour and La Marmora. It is of interest to note that he was opposed to the policy of intervention in Italy, and endeavoured to dissuade Napoleon from the adventure. The account of Solferino—where Niel won his marshal's baton—is taken chiefly from the Bulletins of the 4th Corps.

In the last chapter we see Marshal Niel as Minister of War endeavouring with desperate energy to recast the French military system to meet the situation created by the Prussian victories of 1866. He achieved many useful reforms, notably the introduction of the Chassepot rifle; but he failed to overcome the scepticism of his colleagues as to the nation's peril, or the opposition of Parliament to the principle of universal service. However, though his Army Bill was mutilated beyond recognition, he made the best of what he could obtain, and his Garde Nationale Mobile, with its 20 days' annual training, promised at least a foundation for a Second Line army. There is much in all this that recalls recent controversies on national defence in our own country.

As regards foreign affairs the Minister kept a close watch on Prussia's military preparations. "The day will come," he said ominously, "when Prussia will spring upon us like a panther." In spite of his confident utterances in public, he was well aware that France could not fight Germany without allies. His influence averted such a contingency in 1867, and would, there is little doubt, have averted it again in 1870. But the task which Marshal Niel had undertaken and the obstacles which he encountered proved too great for his strength. He died, after a short illness, in August, 1869, 12 months before the inadequacy of the concessions he had wrung from Parliament was to be revealed by the test of war.

BOOKS OF REFERENCE.

Australian Naval and Military Annual. Issued by the Australian National Defence League. 235 pp., with photographs and maps. Sydney, 1912. Angus & Robertson. 5s.

The editor states that the object of the *Annual* is to acquaint the civilian reader (as well as members of the League) with the present general position of naval and military defence in—(1) Australia; (2) the other Dominions; and (3) incidentally, in a summary way, in Great Britain, India, and the rest of the Empire.

A large part of this publication is necessarily devoted, in its first issue, to reprinting the recent Australian Defence Acts (Naval and Military), and the reports of Lord Kitchener and Admiral Sir R. Henderson. These are followed by several articles, explaining the conditions of service in the Australian Army and Navy, and the organization now in process of creation consequent on the introduction of universal training. For Australian readers there are also short summaries of the other military systems of the British Empire.

The contents of the *Annual* are well set out, and include all the details available at the date of publication, January, 1912.

The National Defence League of Australia advocates a more extended training than that which has been authorised by Parliament; but the criticism offered by the editor is fairly put and easily distinguishable from his statement of the system as it now exists.

The Army Annual, 1912. Edited by Lieut.-Colonel H. M. E. Brunker. 8vo. London, 1912. W. Clowes & Sons. 3s. 6d. net.

The current number of *The Army Annual* maintains its reputation as a valuable book of reference on military questions of the day. The first 37 pages are occupied by a recapitulation of matters of service interest contained in *Army Estimates*. Papers dealing with the defence forces in course of creation in the Oversea Dominions are included, as well as others on such subjects as the National Service League and the Naval and Military Emigration League. Several interesting articles which have appeared in various military magazines are also republished here, such, for instance, as the supply system in war, Army signalling, and battalion organization.

The price at which this useful book is published has been reduced to half the original sum.

FOREIGN ARMIES.

The Swedish Army: what it is, and what it might be. (*Svenska Armen, sadan den ar, och sadan den kunde vara.*) By C. O. Nordensvan. 206 pp. 8vo. Stockholm, 1911. Norstedt & Soners. 2s. 10d.

A study of the Swedish military system is of considerable interest at the present time to British officers. Not only is the field army of Sweden (six divisions and a cavalry division) curiously similar in size

and composition to our own Expeditionary Force, but the character and political system of the Swedish nation are, perhaps, more analogous to our own than that of any other country in Europe. Generally speaking, the Swedish military system is that advocated by the National Service League for this country, and a study of the merits and demerits of such a system in its actual working brings home its strong and weak points in a clear and practical manner. Swedish military opinion appears to be almost unanimous in its condemnation. To quote the author: "The system is very expensive for the results obtained. Arrangements made to suit people's convenience and wishes are always inefficient and expensive compared with those made chiefly with a view to obtaining military efficiency." Nor does the system appear to have succeeded in implanting that idea of a "national army" which is so great a military asset, for in another place we find the author expressing himself as follows: "There is a rooted idea that the permanent corps of officers and N.C.O's. ("fastanställda personal") are really the army, and that the rest are only a sort of amateur auxiliaries who are hardly worth bothering about. Until that idea is killed Sweden will never have a really efficient army."

However this may be, the book under review and others of a similar nature can be strongly recommended to all officers who are able to read the interesting and easily acquired language in which they are written. In the particular book under review the author begins by pointing out that the secession of Norway has produced a new political situation. The field army of Sweden consists now, as then, of six infantry divisions and a cavalry division. If the forces of Norway be estimated as equivalent to three to four Swedish divisions, and if her possible hostility be assumed, Sweden might find herself obliged to meet Russia with only two to three divisions instead of with six of her own, in conjunction with two from Norway, as was previously the case. In the author's opinion 12 divisions should and could be provided for the field army—i.e., four for use on the western frontier, eight for use on the northern and eastern frontier against Russia. Hopes of being allowed to maintain a permanently neutral attitude in case of a European war are dismissed as Utopian, and the necessity of maintaining forces which will make an alliance with Sweden desirable to stronger Powers, is insisted on. A criticism of the Swedish First Line troops follows. The advisability of maintaining a single large cavalry division is questioned, chiefly on the ground that the Swedish terrain is unsuitable for the employment of large masses of cavalry, and the organization of the cavalry in eight six-squadron regiments instead of in 10 five-squadron regiments is recommended. The infantry should, in the opinion of the writer, be re-organized in regiments of four battalions instead of three battalions, as at present. There would then be three four-battalion regiments in a division instead of four of three-battalions.

The proportion of guns to rifles is considered to be too small; the formation of mountain artillery and the permanent attachment of

heavy batteries to each of the six divisions are indicated as necessary. It is pointed out that the Swedish army is still unprovided with machine guns. The first line garrison troops are stated to be insufficient, especially in the winter months, to man the fortresses in their charge. Fault is also found with the present peace distribution of the cavalry in South Sweden, and its removal to the vicinity of the threatened frontiers is advocated. No cavalry brigade staffs exist in peace, and their formation is advocated.

The next subject examined is that of reserve formations. Of these Sweden has none, and their organization is a clear and obvious necessity. The reserves consist of about 140,000 men in eight-yearly classes. The author proposes that the total time of liability to service should be prolonged from 12 to 15 years, thus giving 11-yearly classes of reservists. Of these latter the first four should be allotted to the first line army, leaving seven classes available for reserve formations. The question of officers, N.C.O's., arms, and material for such formations is investigated, and it is shown that no insuperable obstacles exist.

With reference to the terms of service, the author comes to the conclusion that no satisfactory results can be expected from the present system, which consists, generally speaking, of an army enlisted on the general lines advocated by the National Service League in England, with a permanent staff of officers and N.C.O's. The present periods of service are quite insufficient. He recommends instead a continuous service of one year with the colours under the ordinary Continental arrangements. Two chapters deal with the provision of N.C.O's. and officers respectively. With regard to the latter, the question of promotion by regiments, by larger units, or by arms is considered, and the conclusion is reached that a compromise between the three methods is most suitable. An improved organization of the Landsturm is suggested; and attention is drawn to its present inchoate and unorganized condition. A strong plea is put in for increased expenditure on fortresses, and the fortification of Stockholm on the land side is strongly advocated. The last chapters point out the difficulty of obtaining a satisfactory army management under democratic parliamentary government, and the great expense incurred in comparison with the results obtained by the present semi-Militia system which prevails in Sweden. The author sums up the condition of the Swedish Army as follows: We have six infantry divisions and one cavalry division and scanty garrison troops. These are fairly efficient and ready for war; but their staffs would have to be hurriedly formed by depleting other troops. Behind there is an unorganized mass of reservists, without cadres, officers, N.C.O's., or sufficient equipment. Behind this again a Landsturm, almost entirely unprepared, which cannot be called out until Sweden is actually invaded.

He considers the following steps to be necessary:—

- (1) An increase of numbers by organizing reserve cadres and formations.

- (2) An increase of the time of service to one year with the colours. This will provide a peace army permanently on foot, and ensure a training which will be thorough and sufficient, instead of superficial and insufficient.
- (3) A re-organization of the Landsturm.
- (4) An increase of the total period of liability to service from 12 to 15 years.
- (5) A cessation of discussion and a resort to action.

The book is clearly and logically written, and the measures advocated are sensible and desirable from a military point of view. As to the best methods for inducing the civilian population to shoulder the additional burdens which would result from the adoption of his proposals, the author is silent.

HISTORY.

History of the Russo-Japanese War. Compiled by the Japanese General Staff (Nichi-Ro Senshi, Sambo Hombu Hensan). Vol. I. 746 pp. 27 Appendices, and case of maps. 8vo. Tokyo, Kaikosha, June, 1912. Complete in 10 vols., £5 16s. 5d.

Although the first volume of the Japanese official account appears eight years after the events which it describes, the summary of contents shows that the work of compilation has been a considerable one. The 10 volumes contain over 10,000 pages, while there are over 800 maps outside the text.¹

The difficulty that the military student must experience in extracting lessons from so large a mass of material is increased by the absence of an index (the Japanese language not lending itself to this convenience) and of comments.

It is evident that an official history compiled by officers who are still the subordinates of the men who took a leading part in the war cannot contain candid criticisms, and it is equally comprehensible that no nation willingly makes a gift to its rivals of the practical lessons that it has purchased so dearly. At the same time so entire an absence of self-revelation is a matter for regret. At no time, at any rate in the first volume, is the reader allowed to see into the minds of these great soldiers; and a history which merely chronicles events as they occur and orders after they are issued, is but a skeleton.

GENERAL ARRANGEMENT.

The history deals with the operations on land, the naval account being a separate publication.

The chief events treated in the different volumes are as follows :—

Vol. I.—Causes of the War. The rival armies. Japanese and Russian Plans of campaign. Epitome of the naval operations. The Yalu, Nanshan, Te-li-ssu. Landing of the 10th Division.

¹ Succeeding volumes are advertised to appear at 1-3 monthly intervals, and the final volume in October, 1913.

Vols. 2-4.—Ta-shih-chiao. Liao-yang. Shaho.

Vols. 5-6.—Siege of Port Arthur.

Vol. 7.—Events after the battle of Shaho.

Vols. 8-9.—Mukden.

Vol. 10.—Occupation of Saghalien. Lines of communication and services in rear of the army.

Each of the 16 sections into which the whole history is divided is preceded by a summary of the events dealt with in the section in question. At the end of each chapter is an account of the Russian movements which took place during the period under notice. By the use of different type the information of the enemy that was known to the Japanese at the time is distinguished from the facts revealed by subsequent investigation.

The maps show the positions of units with great clearness and detail, a result which is mainly due to the Japanese system of conventional signs for troops which is very complete. The nomenclature of Japanese units which are known by numbers only is also less cumbrous than our own.

Orders of battle, lists of casualties (including losses in horseflesh), and ammunition expenditure during the principal engagements and copies of orders are given in the appendix.

CAUSES OF THE WAR.

The opening chapter on the "Causes of the War" is very brief (14 pages). Remembering that a chief one was Japan's determination to show the world that she would no longer continue to be treated as a negligible quantity, there is a dignified restraint in the account of her relations with Russia before the war. The retrocession of Port Arthur in 1895 may be quoted as an illustration of this absence of recrimination over past injuries. The account of the incident occupies two lines in the original, and is as follows: "As one result of the 1894-5 campaign China ceded to Japan the Liao-tung Peninsula; but, on the ground that the peace of the Far East was affected thereby, Russia, together with France and Germany, demanded that Japan should relinquish it. Our Government had no other course but to accede to this demand."

A glimpse of the Japanese attitude, however, appears in the reference to the Russian naval manœuvres in the Yellow Sea and the artillery practice from Vladivostock in May, 1903, "which tried to intimidate us with the noise of their fire."

It is interesting to know what information was in the possession of the Japanese Headquarters at the beginning of February—i.e., on the eve of war—since it affords a clue to the reasons why the Japanese broke off the negotiations when they did. The history summarises this information as follows:—

"About two battalions of infantry belonging to the Third Brigade in Kuantung with some artillery were dispatched on the 21st January with orders to observe the line of the Yalu.

- " At Liao-yang quarters are being prepared and vehicles collected. Food and clothes are being sent to Fenghuangcheng, and 20,000 Chinese horses have been ordered ; 2,000 fresh troops have arrived at Liao-yang.
- " On the 1st February our Consul at Vladivostok was told that all Japanese were to prepare to leave.
- " The whole of the Russian fleet in Port Arthur (with the exception of one battleship undergoing repairs) have gone out to sea (destination unknown).² Russian forces in the Far East appear to be mobilizing.
- " The following information was received from Europe : Russia will form two armies—North and South—and concentrate them in South Manchuria and the Ussuri.
- " Russia intends to send the following reinforcements from Europe when necessary, viz., two Army Corps, four reserve infantry divisions and a cavalry brigade ; while she is now preparing to send two infantry divisions, one division and one brigade of cavalry, in addition to the above.
- " The troops east of Lake Baikal are concentrating in Manchuria and Ussuri.
- " The Ninth East Siberian Rifle Brigade is to be converted into a division and a new brigade formed. A draft left at the end of January for the purpose of bringing a portion of the 31st Infantry Division up to war strength.
- " The Tsar has entrusted Viceroy Alexiev with full powers. The latter has determined upon war, but wishes to delay until the naval reinforcements under Admiral Virenius arrive, the 3rd Siberian Army Corps is organized, and the docks at Port Arthur are completed."

At this moment—the beginning of February—military strategy did not favour the opening of hostilities. To invade Korea while her northern ports were still ice-bound and her roads about to become impassable would, as events proved, involved many weeks' delay ; nor was there any information to show that the occupation of Korea a month later would be more hazardous or undesirable from the military or political point of view. In spite of the fact that, in Japan, the army is the senior service, and her chiefs practically monopolized political power—the Premier was a general on the active list, Prince Yemagata (the senior of the elder statesmen) a field-marshal—the paramount necessities of naval strategy were recognized. Admiral Virenius was approaching it is true, but he could not reach Port Arthur before the beginning of March. The crucial point was that the Port Arthur fleet had gone out to sea. Its whereabouts and destination were unknown in Tokyo on the 3rd February, and it is significant that at an Imperial Council the following day it was decided to begin hostilities.

² This information does not appear to have been mentioned in other accounts. It is also stated in a note to the above that, as a matter of fact, the Russian fleet anchored in Talien Bay on the night of February 3rd, and returned to Port Arthur the next day.

With the exception of the statement that Reserve (Kobi) divisions were formed (as well as brigades), the chapter on the Japanese military forces contains no information not already available.

The total number of combatants and non-combatants that took part in the war is given as 1,088,996 ; of these 999,868 served overseas.

THE JAPANESE PLAN OF CAMPAIGN.

A translation—practically in *extenso*—is given below of the “Japanese Plan of Campaign” as being, perhaps, the most important chapter in the book :—

“The Japanese General Staff realized before the war that, although the Russian Army was some seven times greater than their own, yet the numbers that Russia could employ in the Far East were not greatly superior . . . and would not, in fact, be more than two-fifths of her total force, owing to the necessity for protecting her interests in Europe. Difficulty of supply was another important factor limiting the number of troops that could be employed. Eastern Siberia was thinly populated and comparatively unproductive, while Manchuria could only provide a portion of the forage and rations required. Everything else must be sent from Russia by a single line of railway. Taking into consideration also the still imperfect condition of this line and the interruption caused by Lake Baikal, it could be said positively that more than 300,000 men could not be maintained in the Far East. There was also at this time a considerable amount of unrest in Russia, and this cause further reduced the force that was likely to be sent against us to about 250,000 men, a number about equal to that which we could send from Japan.

“With regard to the Russian area of concentration, although its position was uncertain, yet it must be situated so as to provide suitable lines of advance both towards South Manchuria and the Ussuri region, whichever the Japanese might choose as the field of operations for their main army.

“Although it would seem that reinforcements from Europe and Western Siberia ought first to concentrate at Harbin, yet it seemed more probable that Russia would reinforce the troops already in the Far East than allow us to overrun Southern Manchuria without resistance. (At the end of January the following was estimated to be the strength of the Russian forces in the Far East if mobilized, omitting reserves to frontier troops : 96 battalions, 75 squadrons, 30½ batteries (230 guns), 8 engineer companies, 1 battalion, 17 batteries, and 1 engineer company of fortress troops.)

“If the enemy advanced south we should concentrate our forces as quickly as possible and drive them back. If, on the other hand, the troops already in Manchuria and Ussuri were used to keep touch with us and gradually draw us northwards until the main Russian Army had finished its concentration, then it would be for us to overwhelm their advanced troops before attacking their main army when it advances.

“ At the outset our chief object was to bring about the main operations in Manchuria, to search out the enemy’s main strength and drive it northwards ; while our fleet must defeat their Pacific Fleet and thus obtain command of Eastern waters.

“ In accordance with these intentions the operations on land were divided into two periods, and the plan was broadly as follows :—

“ First Period.—The 1st Army to advance from Korea, debouch on the right bank of the Yalu and contain the enemy ; the 2nd Army, at a favourable opportunity, to occupy a point on the south-east coast of the Liao-tung Peninsula and establish a base there. The 3rd Army then to land and observe the Port Arthur fortress, and if necessary take it. While the 2nd Army was advancing north in conjunction with the 1st Army, the 4th Army was to land, either between the 1st and 2nd Armies, or on the north-east shore of the Gulf of Pechili ; these three armies acting in close co-operation to take Liao-yang.

“ Second Period.—If the first phase opened in the spring it should be completed by the autumn ; the Army would therefore winter north of Liao-yang on ground that had been won, rest, and refit. Movements would recommence the following spring, the enemy sought out and crushed beyond hope of recovery.

“ Saghalien to be taken at a suitable time during either of these two periods.

“ Although Russia’s Far Eastern fleet had been increased, her naval strength when relations between the two nations became strained was approximately equal to our own.

“ We could not tell whether at the outbreak of war their fleet—or the greater part of it—would—(a) assemble in Port Arthur Harbour and await the arrival of reinforcements ; or (b) seek a decision at once ; or (c) operate in the Yellow Sea or Sea of Japan and await a favourable opportunity. As the adoption of either (b) or (c) would favour the Japanese, course (a) was the most probable one . . .

“ But as every day’s delay was so much time gained for the Russian preparations, we decided not to await the result of a naval engagement but to send a powerful force to Korea and capture Seoul, a movement which could be carried out without risk, as our navy could thoroughly guard the Korean Straits. Moreover, calculations showed that if both sides sent a division to Seoul (*i.e.*, at the outbreak of war) we should have a considerable advantage as regards time. Consequently a detachment was to land at Chemulpo immediately after war was declared, occupy Seoul, and deliver Korea from the yoke of Russia, after which one division was to land on the south or east coast of Korea, concentrate in the vicinity of Seoul, and there await the result of the naval engagement. The possibility of the enemy advancing from the north could almost be dismissed, on account of distance and the difficulty of the country.

"Should our navy be successful, a strong force was to be pushed into the north-west portion of Korea, in order to complete the occupation of that country, and obtain the first victory. In other words, the main portion or two divisions of the 1st Army would land on the west coast of Korea and, joining the division previously disembarked on the west coast, advance through the north-west province of Korea into S. Manchuria . . .

"If Chinampo be chosen as our port of disembarkation and the district in the neighbourhood of Pingyang as our area of concentration, we should be able to concentrate three divisions (including the division detached to Seoul) before the enemy could do so, but if the ice has not melted, Chemulpo must be our port of disembarkation, and the area of concentration must be changed to the neighbourhood of Haiju. This would involve several days' delay, but it should not be very difficult to concentrate in that area before the enemy could reach it.

"It was decided to disembark the bulk of the 1st Army after command of the sea had been obtained, Chinampo was to be the chief port of disembarkation if ice-free, otherwise Chemulpo. The 1st Army was then to advance, and when it had occupied the right bank of the Yalu the 2nd Army (3 divisions, 1 cavalry brigade, and 1 artillery brigade) was to land—covered by the 1st Army—on the south-east shore of the Liaotung Peninsula at a point as far as possible from Port Arthur, in view of possible interference from the Russian fleet. Taku-shan was eventually chosen, in order that the 2nd Army might co-operate as closely as possible with the 1st Army.

"The plan of campaign given above was determined before the war began, and the operations during the first period were carried out almost entirely as planned; but with the object of destroying the enemy's fleet the capture of Port Arthur was undertaken, and the length of this siege, necessitated by the stubborn resistance of the garrison, had a great influence upon the operations of the main army. The consequence was the battle of the Shaho during the second period, and although the enemy's intention was frustrated, yet it must be admitted that, owing to lack of numbers, we did not gain the success that we hoped for . . .

"After the battle of Mukden Russia's military resources were by no means exhausted: the capacity of the railway had been enormously increased, she had renewed her strength. On the other hand our preparations were very extended and difficult to maintain, while the conquest of Saghalien and the advance in N. Korea could not be carried out, as our fleet was required to meet the approaching Baltic Fleet. However, the victory of the Sea of Japan enabled us to carry out our original plan, Saghalien was occupied, the enemy was expelled from the north of Korea, and our troops there reinforced the army in Manchuria . . ."

It will be noted in the foregoing that: (1) Although the possibility of a Japanese advance from the direction of Vladivostock is mentioned in connection with the choice of the Russian area of concentration,

we are not told whether this possibility was ever entertained by the Japanese General Staff. (2) It was recognized before the war that the Russian Fleet would probably remain in Port Arthur until naval reinforcements arrived (see above), but it was, apparently, not considered at that period that this would necessarily involve the capture of Port Arthur: "The 3rd Army . . . was to . . . observe the Port Arthur fortress, and, if necessary, take it." (3) From the comparatively lengthy discussion devoted to the subject it appears as if the occupation of Korea was the essential and difficult thing. It is true that if hostilities began before the ice melted, then the first advance could only take place in Korea; but if the war started after the South Manchurian coast was free from ice, it is not clear (assuming that sufficient superiority had been established at sea) why the occupation of Korea should still be the only initial operation worthy of consideration.

The following are extracts of the summary of the operations described in Vol. I, which precedes the detailed account.

After describing the advance of the 1st Army to Wiju, the employment of the 2nd Army is discussed as follows:—

"Owing to the favourable naval situation it was hoped that it would be possible to land the 2nd Army in the neighbourhood of Talien Wan. At first the Japanese Headquarters had three alternative plans: (1) To land immediately the main army with one swoop in and near Talien Wan, quickly cut off the Kuan-tung Peninsula, and establish a large base there; (2) to land at Ta-ku-shan or to the east of it, so as to act in close co-operation with the 1st Army; or (3) to land in the vicinity of the mouth of the Ta-sha-ho. But as the enemy appeared at the end of April to have about 4 divisions in the neighbourhood of Liao-yang, 2 divisions at Feng-huang-cheng, 2 divisions between Chinchou and Kaiping, and about 1 division in Port Arthur, Talien Wan was the most suitable place of disembarkation, as calculations of time and space showed that it involved little danger from a land attack, while its position was excellent strategically; it was, however, very dangerous from the naval point of view. Plan (2) was not only unsuitable for disembarkation of troops, but it would cause a delay in the subsequent operations. It had, however, the advantage that it was the least risky, and would have been chosen had not the naval situation permitted the adoption of Plan (1). . . . It had originally been the intention to include a division with mountain guns in the 2nd Army, but as the country round Talien Wan was flat and the resistance of the garrison had to be considered, mountain guns were not included.

"The Imperial Headquarters decided that if Admiral Togo's third blocking expedition was successfully carried out on or before the 30th April, the 2nd Army would immediately land near Talien Wan; if not successful, that the landing would be carried out near the mouth of the Ta-sha-ho.

"On the 22nd April, in consequence of Admiral Togo's decision, (1843)

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it was decided that the disembarkation of the 2nd Army would begin on the 1st May, whatever the result of the blocking expedition.

"The bulk of the 2nd Army (1st, 3rd, and 4th Divisions) assembled off Chinampo on the 30th April, and the first detachment landed on the south-west shore of the mouth of the Ta-sha-ho on the 5th May in conjunction with the third blocking expedition (the date was delayed on account of naval preparations). The 1st Army was instructed to debouch on the right bank of the Sha-ho before the 2nd Army landed, contain the enemy, and so prevent him from advancing south. Contrary to expectation the enemy did not move south from Liao-yang and Anping, and stranger still the Russians near Port Arthur and Chin-chou offered no resistance, so that the landing was easily effected . . .

"The landing of the 10th Division should have synchronized with that of the 2nd Army, but owing to the lack of transports it was delayed until the 19th May; and then, in consequence of the very bad landing facilities, the disembarkation although unopposed was very slow. It was the intention to land another division at Kankyodo; but as our fleet was obliged to watch the Vladivostok Squadron and transports were lacking, this plan was changed.

"As the 2nd Army and 10th Division were now established on the Liaotung Peninsula, it was necessary to prepare to organize one army to advance northwards and another to besiege Port Arthur. The 5th and 11th Divisions were accordingly allotted to the 2nd Army. Previous to this Admiral Togo had reported that he could not clear Talien Wan of mines until the Chin-chou Isthmus had been occupied by the army. The 2nd Army was accordingly directed to attack the enemy in the neighbourhood of Nanshan. Tairen was occupied, and the 5th and 11th Divisions were gradually disembarked; the 1st and 11th Divisions formed the 3rd Army, while the 2nd Army prepared to advance northwards. At this time the main body of the enemy's fleet was lying up in Port Arthur awaiting an opportunity, and could not be neglected. The only method of operating against this fleet was to destroy its base from the land side. Tairen was also necessary as a main overseas base for the Manchurian armies. For these reasons the attack of Port Arthur was decided upon.

"At the beginning of June reports were heard that the enemy were moving south from Liao-yang and Kaiping. The 6th Division was accordingly suddenly added to the 2nd Army . . . The 1st and 4th Kobi Brigades, then in course of formation, were allotted to the 3rd Army. Owing to the continuous activity of a large force of Russian cavalry on the right flank of the 1st Army, and to the necessity for protecting that Army's line of communication, a Guard Kobi Brigade (two battalions of which were already on the lines of communication) was formed, and together with three other Kobi battalions were added to the 1st Army. . . . The 10th Division, which was felt to be too weak, was also reinforced by the 10th Kobi Brigade.

"About the middle of June reports were received that the enemy's

Baltic Fleet was approaching. . . . The Commander of the 3rd Army was accordingly instructed to capture Port Arthur as quickly as possible.

"About this time Imperial Headquarters decided that the 1st and 2nd Armies and 10th Division must defeat the enemy's main army at Liao-yang before the rainy season in Manchuria began, and in accordance with this object the following plan was laid down :—

"(1) The 3rd Army will be reinforced by the 9th Division and, if necessary, by the 2nd Field Artillery Brigade.

(2) The 1st Army will push forward at once a force of about 1 division to Tsao-ho-kou, and under cover of this force 21 days' supplies for 3 divisions will be collected at Tung-yuan-pao.

"(3) The 10th Division will collect supplies for 20 days for 2 divisions at Hsiu-yen by the 6th July. The detachment at Hsin-kai-ling will co-operate if the situation renders it necessary.

"The 10th Kobi Brigade will begin its disembarkation at Ta-ku-shan on 1st July, and follow the 10th Division.

"(4) The 2nd Army will advance on Kai-ping on the 19th June. After taking it the Army will occupy Ta-shih-chiao and Ying-kou with strong advanced parties.

"Supplies north of Hsiung-yo-cheng will be drawn from sea transport.

"If the above plan can be carried out as arranged each army will advance without interruption on Liao-yang; but if this advance does not progress as anticipated and the rainy season begins, then it will be necessary to remain in whatever positions are reached until the rains are over.

"Imperial Headquarters issued orders in the above sense, and also gave instructions on the 19th June to the 1st and 2nd Armies and 10th Division, that in accordance with the above instructions, the advance on Liao-yang was to be carried out as quickly as possible. The Inspector-General of Communications (General Kodama) was also directed to disembark supplies at the mouth of the Hsung-yo-ho as soon as Hsung-ho-cheng was occupied.

"On the 20th June General Kuroki requested leave to recall the Asada detachment. Imperial Headquarters refused to allow this until the 10th Kobi Brigade had joined the 10th Division, and ordered that no advance was to be made north of Fen-shiu-ling. . . .

"The intention of the 2nd Army to advance upon Kai-ping after Te-li-ssu was frustrated by the difficulties of transport upon the line of communications. . . ."

An Outline of the Russo-Japanese War, 1904-5. By Colonel Charles Ross, D.S.O. 490 pp., numerous maps. 8vo. London, 1912. Macmillan. 10s. 6d.

Vol. I brings the history of the war up to and includes the battle of Liao-yang.

In his preface the author states his belief that there exists a vast, practically unwritten and little-known history of every war; that it is this unwritten history which is the very soul of war; and that the study of it is essential to a just comprehension of the methods by which war should be conducted.

For obvious reasons this inner history does not appear in the Official Histories given to the world by the contending Powers. The victor knows that it is wisest to keep to himself the secrets of his success; the government of the vanquished Power is unwilling to divulge the true history of a defeat for which it is responsible. The student of war must, therefore, discover this inner history for himself.

On this basis the author presents a study of the strategy of the Russo-Japanese War from the point of view of the personal equation of the various commanders. He takes into consideration—to use his own words again—the state of mind, the nervous tension, the hopes and fears of the hostile commanders, treating them as if they were flesh and blood, and not mere automata or mechanical contrivances which required neither food nor drink nor sleep, and that possessed neither brains, stomachs, nor nerves.

He follows “the play of wits between the hostile commanders, which constitutes the very soul of war.” The difficulties which handicapped General Kuropatkin in this play of wits are described at some length; his having to adapt his strategy to meet the requirements of two masters, the Tsar and the Viceroy; the absence of an efficient Intelligence Department trained in peace time and capable not only of obtaining accurate information, but also of disseminating false information intended to mystify and mislead the enemy; the want of that power of divination on the part of the Commander-in-Chief himself which would have enabled him to view the situation with the eyes of his opponent, and to play on his fears and touch his nerves accordingly.

Dealing with the matter of accurate information, the author indicates the influence which the presence of aircraft capable of affording information as to the enemy's actual strength might have had on the conduct and issue of some of the engagements. The Russian defeats on the Yalu and at Telissu might, in his opinion, have been avoided and Ta-shih-chiao might have been a Russian victory. At Liao-yang Kuropatkin might have learnt that the Japanese possessed no reserves. On the other hand, the Japanese might have obtained information which would have led to their throwing the whole of the 1st Army across the Tai-tzu Ho.

The study of the strategy of the war in its political aspect sometimes leads the author on to matters of general rather than purely military interest. The narrative of the course of the campaign is clear and consecutive. The various battles are well described without much detail; and the maps which give only the place names mentioned in the text, are clear and useful.

Modern Japan, her Evolution. (Le Japon Moderne son Evolution.)
By L. Naudeau. 412 pp. 12mo. Paris. Ernest Flammarion. 3s.

The unusual sympathy and understanding which is so often evident in books on Japan by Frenchmen, and to a special degree in the book under review, may possibly be due to a certain similarity in the characteristics of the two nations. Both are essentially military. In both the æsthetic qualities are strongly developed; there is the common love of change and excitement, and the tendency towards great enthusiasm and deep discouragement. To use an electrical analogy, the vital current of the two races appears to be one of high tension rather than of large volume.

The work of M. Naudeau is, broadly speaking, a study of Japanese mental characteristics and modern tendencies. The principal section is entitled "Psychologie de la Bravoure Japonaise," and the author's explanation of the national feeling that was aroused by the Russo-Japanese campaign is of special interest; it fills the unavoidable gaps in the official summary of the causes of the war. He writes as follows:—

"The Russo-Japanese War was, however, more a war of revenge against the white races as a whole. When, 40 years ago, Japan was opened to foreign intercourse, an exceedingly proud nation was brought into contact practically for the first time not with the best class of European, but with a collection of adventurers and merchants, intent upon profit, who did not see that they had to do here with a nation of warriors. They treated the natives in the same way as they treated negroes, Indians, and other coloured races. They did not in the least realize that the aristocrats of this country were as proud, as sensitive, as irritable, and much more revengeful than were the musketeers in the time of Louis XII.

"In a country where to brush against another may mean death to one of the parties, Japanese Samurai were kicked in the streets by some drunken white sailor. This is not the place to multiply instances, but at every turn Europeans, because they felt themselves stronger, behaved with arrogance or brutality. At the least conflict tempestuous Consuls or naval officers presented demands for indemnity, or bombarded with absolute impartiality any port, whatever the particular question might be. Above all, these foreigners who had forced themselves upon the country in spite of the strongest attempts to keep them out, lived outside the law under their own magistrates. The natives were powerless.

"Sometimes a Japanese lost patience and a foreigner was cut down. Then European diplomacy interfered and demanded exemplary punishments. . . . It is because they were thus stimulated by injuries and disgusted by insults, that the Japanese united and armed.

"It must not be supposed that the Japanese were blameless during all this period . . . evil engenders and multiplies evil.

"It can now be understood what, in the eyes of the Japanese, the Manchurian War stood for. That nation had an account to settle with the white race. . . . For the mass of the Japanese people

the war of 1904 was not only a war against the Russian nation ; it was in truth a revolt against the white race—so proud, so omnipotent, so menacing. . . .”

Among the immediate causes that led to the war, the author notes, naturally enough, the construction of the Trans-Siberian Railway. This was begun in 1891. But he also mentions two other events, now forgotten, which happened in the same year, and which may have had a share in provoking hostilities : “ A Japanese fanatic attempted to assassinate the present Tsar while on a visit to Japan ; a cathedral of the Russian Church was opened in Tokyo on the most prominent ground in the city and overlooking the Imperial Palace ; this caused the gravest concern at Court.”

As endorsing the author's views, we cannot do better than quote from a recent work published by a Japanese military society on the Infantry Training Manual. The portion given is from the introduction, and is entitled “ The Character of the Japanese People ” :—

“ . . . Therefore we see that the Japanese, like touchwood, are easily inflamed (aroused) and as easily extinguished (depressed). They are deficient in perseverance ; they desire to attain success at once, and the power of making progress by degrees is greatly wanting. Therefore, in dealing with the Japanese, one should pay attention to the following points :—

“ ‘ If they are placed in a favourable environment, by their efforts they more and more increase the degree of their ability ; but should they be placed in an unfavourable position their spirit falls, and they entirely lose their energy. For this reason they must be used actively, and must not be placed in a position of passivity. In other words, they must be used in attack and not in defence. When nervous people are made to adopt a passive attitude, the condition of their spirit becomes depressed ; but the vigour with which they will act against a definite objective is almost inconceivable. Therefore with Japanese one should endeavour to direct their wills towards a single purpose . . . that is, it is important that they should take the initiative.

“ ‘ The Japanese must be employed at the moment when their passions are aroused, and as their ardour lasts for only a very short time one should not neglect to make use of this brief space of time.

“ ‘ Japanese are very fond of change ; they readily tire of one thing. Monotony is entirely foreign to the national character. For this reason original methods are often preferable to more conventional methods.’ ”

The Japanese in Manchuria, 1904. Vol. I. The Yalu and Telissu. By Colonel E. L. V. Cordonnier, French Army. Translated by Captain C. F. Atkinson. 281 pp. 12 maps in pocket. 8vo. London, 1912. Hugh Rees. 7s. 6d.

This valuable study was first published in serial form in the *Revue d'Infanterie*, 1910–11 ; is unsurpassed by any work on the Russo-Japanese War that has so far appeared. Admirable is the clear, logical

way in which the author recounts the various episodes and draws lessons therefrom. Part II (later stages of advance on Liao-yang) is now appearing in the same review. Part I is also issued in book form in French by Charles Lavauzelle, Paris.

After a brief sketch of Japan's development and the events leading up to the war, the author deals with "The Plan of the War" (Chap. II). This chapter is divided into various sub-headings: Policy, Preparation, Theatre of War, Duration of War, Forces, Strategic Objective, Finance. As regards the first-named we read that "everywhere public opinion clamours for results, and refuses money. It is the Government's business to impose the sacrifice."

By reference to the Crimean, Franco-German, and Seven Years' Wars the author demonstrates the interdependence of political and strategic considerations in selecting the theatre of war. He considers that Russia, through following General Dragomirov's view, "That the affairs of the Far East would be decided in Europe," neglected the East Asian Theatre and suffered in consequence. Under "Forces" he discusses the capacity of the Trans-Siberian, and holds that an earlier completion of this railway would have ensured for Russia overwhelming numerical superiority at Liao-yang. Page 41 contains a brief statement of the belligerents' naval forces in the Far East. On page 43 is given a summary of their land forces. On pages 53 *et seq.* the author shows that the destruction of Russia's fleet being the paramount necessity, Port Arthur—although remote from the main theatre of military operations—had to be vigorously attacked by land so as to second the naval efforts. Under "War and Finance" (pages 57 to 69) the German "War Chest" is referred to and criticized. Pages 66 and 67 give information about Japan's war loans. On page 63 is a chart to illustrate Japan's financial *ante bellum* preparations. Following hereon the author refers to Great Britain as one of the nations who can gauge the intentions of potential opponents by scrutinizing their Budgets.

"War," says the author on page 70, "is the wrestle of two nations, which throw into the contest their blood, their money, their moral force . . . the battle . . . is only an episode . . . generally the decisive episode . . . but not an isolated act."

He excuses some of the Russian shortcomings on the ground that their best troops were kept on the western (German) frontier, and devotes some pages to proving that Cossacks could not be compared to cavalry proper. Elsewhere he quotes a description of them as "Fathers of families and owners of their horses." Pages 82 *et seq.* give an exhaustive account of the distribution of Russia's Far Eastern forces on the outbreak of war. On pages 85 to 93 he shows how naval considerations influenced the choice of the army's concentration point in a manner prejudicial to military strategy.

On page 80 *et seq.* he discusses higher leading: "The offensive is not within the capacity of all troops . . . of every general . . . Kuropatkin constantly talked of the offensive; he never took it."

He connects Zasulich's, Keller's, and Simonov's failings with long absence from combatant duties. His observations on this subject are worth quoting: "Zasulich had been for some years a provincial governor, and his tactical ideas had become somewhat confused." Elsewhere: "Military qualities, only to be acquired in touch with troops, disappear when that touch is lost." On pages 94 to 105, under "Protective Operations," Kuropatkin's orders are compared with the writings of Clausewitz, Blume, and Bonnal. On pages 116 to 120 the author discusses manœuvres in retreat, and the moment when Zasulich should have retired from the Yalu. His description of the rôle which cavalry should fulfil on such occasions is worth quoting: "Scouts ahead and far to the flanks. It escorts batteries changing position, establishes communications . . . with its carbine it disputes ground on the flanks . . . defends crests from which batteries are withdrawing. . . . With its sword it disengages the last batteries, the last companies." In summing up this portion he declares that long-range weapons and indirect laying have facilitated the breaking off of actions. He explicitly contradicts the widely circulated account that two Russian regiments panic-stricken fired upon each other after the Yalu fight. Turning to the Japanese, page 188 contains a good description with diagrams of their march through Korea. In connection with Asada's detachment covering this march, the author deals with strategical advanced guards. In a foot-note to page 187 the translator speaks of these as "The mainspring of the modern French school of strategy and tactics," a statement which must be modified in view of de Grandmaison's, Montaigne's, and other recent writings. After giving a *précis* of the Japanese I Army Orders prior to the Yalu battle, he calls attention to the minute details fixed two days beforehand. Page 193 mentions devices used to conceal Japanese guns. The comparative inactivity of the victors after the Yalu is ascribed to relaxation after the strain felt by all ranks on the eve of what was regarded as the initial test of their race against another. The Yalu battle is compared to that of Valmy—great in its results, although not intrinsically important. The succeeding pages (200 to 202) on "War" are written in a stirring style, and well repay perusal.

When discussing the southward move of Stackelberg's Corps the author points out that in ordering it Kuropatkin, under pressure from higher authority, forsook his original plan of refusing to accept battle, or to advance until numerically superior. This plan is pronounced sound, and the departure from it is criticised. "He accepted, although he had no confidence in it. . . . Character has always been as necessary to a warrior as . . . great ideas." Then follow extracts from Napoleon's writings on the same subject.

The author is inaccurate in stating (page 212) that the Japanese naval losses through mines in May, 1904, caused "Great emotion in Japan." They were kept rigidly secret, and not known generally until some time afterwards. Page 216 deals with the encounter between the 13th Japanese Cavalry Regiment and Russian cavalry near Wafangtien

on the 30th May, 1904. The author ascribes the ineffective action of the Japanese 1st Cavalry Brigade at Liao-yang and subsequently to demoralization consequent upon the rough handling which it received in the encounter under notice. It should be noted, however, that tall *kaoliyang* crops considerably impeded cavalry action at Liao-yang. The pages following contain a disquisition on the moral effect which the soldier's idea of his own weapon exercises upon an army.

Page 225 deals with the question of a central army supporting two others operating on its wings. The position of the Japanese IV Army is compared with Napoleon's operations in 1800, and Moltke's in 1866. The author ends up by certain aspersions on the attitude of the Russian General Staff in connection with Poland, which forms a wedge into German territory. His remarks ignore several factors connected with this important question.

Page 232 criticises Kuropatkin's and Stackelberg's actions. The author approves of the latter general's dispositions during the advance on Telissu (a series of entrenched positions distributed in depth, with mixed detachments touching the enemy along a broad front), but severely criticises his Operation Order No. 193 (before Telissu), especially with reference to the cavalry and advanced guard. These furnish him with a theme for discussing cavalry action in modern war.

On pages, 244, 245, 255-258 methods of attack are discussed. The similarity of Japanese tactics prior to the Yalu and Telissu is noticed, viz., a deployment on a wide arc and a convergent advance thenceforward towards the objective. After alluding to the non-receipt by the Russian Army of Stackelberg's Operation Orders (No. 194) for the 15th June, the author dwells on the shortcomings of improvised forces and the importance of well-trained staffs, adducing an instance from Vionville to prove the latter point.

Pages 264-265 contain an admirably clear illustration of the nature of orders issued by commanders of large forces nowadays and the connection therewith of "doctrine" in an army. On page 272 Oku's use of reserves is approvingly described. Pages 276-278 contain criticisms of both cavalries, and the book ends by a quotation from General Maillard anent the necessity for mobility in an army.

The translator, to whom British military readers owe a debt of gratitude, complains in a prefatory note of the difficulties encountered in transliterating place-names. He has succeeded nevertheless in producing maps which illustrate satisfactorily the accounts of the battles dealt with. It should be noted, however, that the Japanese equivalent for Chiu-Lien-Cheng is Kyurenjo, and not as stated on page vi. On page 4 "Yeya" should read Ieyasu. On page 20 "the Genki" should read "men of the Geneki (Active Army)." On page 222 the Chief of the Staff, II Army, General Ochiai, is wrongly called Uchia.

More serious blots are some unduly literal translations from the French calculated to puzzle readers unacquainted with that language. Such are "directives" for "instructions;" "organize" or "organize defensively" for "put into a state of defence;" "barrage" for

"barrier" or "barring;" "surveillance" for "observation" (in some cases for "protection"); "elements" for "constituents;" "open-force assault" for "attempt to capture by assault."

It is to be hoped that Captain Atkinson will translate succeeding portions of Colonel Cordonnier's most instructive writings.

A History of the British Army. Vol. VII, 1809-10. By the Hon. J. W. Fortescue. 661 pp., with index and vol. of maps. 8vo. London, 1912. Macmillan. 21s. net.

In the present volume of his History of the British Army, Mr. Fortescue is only able to deal with the years 1809-10. This is easily understood when we recollect that the British Army was engaged in active operations not only in Holland and the Peninsula, but also in the Mediterranean, as well as in the West and East Indies.

The book begins with an account of the operations in the West Indies in 1809. The strain on British resources which their possessions in those parts entailed, combined with the unfriendly attentions of rival Powers, was a severe one, and the selection of the best policy to be pursued was no easy matter. Mr. Fortescue explains the courses open to England, and shows how, while the question was still undecided, Napoleon's invasion of Spain so far altered the situation that the French colonies became, to all intents and purposes, the sole object of attack, every effort being made to help and protect those which belonged to Spain. It was not, however, till the beginning of the following year that, by the capture of Guadeloupe, the offensive power of France in the West Indies was practically destroyed.

The next chapter begins with a review of the military problems which faced the British Government at the beginning of the year 1809. The resignation of the Duke of York as Commander-in-Chief, and the difficulty of filling the ranks of the Army, were but two of the many troubles which beset them at home. It is interesting to note that the military authorities came forward at this time with a proposal for absorbing the Militia into the Regular Army. Before, however, the plan which was actually accepted had had time to take effect, war broke out between France and Austria. While the British Government was anxious to aid Austria, uncertainty as to the policy which Prussia would pursue made it difficult for ministers to come to a correct decision as to the best sphere in which to employ the British Army. Mr. Fortescue explains in the clearest way the problem which they had to solve, and he makes it plain that, while concentration of effort in the Peninsula was the right military course to pursue, financial difficulties were insuperable. Fortunately the Government decided to make up the force in Portugal to the strength recommended by Sir A. Wellesley, and to place him in command. They then had to consider how to employ the rest of the Army. Amongst the plans put forward was one for an attack on Walcheren, with a view to the destruction of the squadron known to be in the Scheldt. This scheme, which appears to have been warmly supported by the naval and equally strongly

opposed by the military authorities, was finally approved. It seems practically certain that the expedition would have been a failure in any event; but, to have the faintest chance of success, it was essential that it should be despatched while the weather was favourable, should come as a surprise, and be conducted with energy. Unfortunately every one of these essentials was lacking, and friction between the naval and military commanders made matters worse.

Mr. Fortescue maintains that the real mistake made by Ministers was in committing the force to an operation of doubtful success, when by holding it in readiness for a month or two, its quality would have been improved, and a more profitable objective might have been found elsewhere. It is somewhat difficult to accept this view of the case when we remember the state of affairs abroad. As the author himself points out, Austria needed practical support, and it was equally important to encourage the patriotic party in Prussia. While, therefore, we may agree with Mr. Fortescue's conclusion as to the unsuitability of the British Constitution for the purposes of war, we may perhaps be permitted to doubt whether in the given circumstances any other form of Government would have found a happier solution.

From Holland we are taken to the Peninsula, and after dealing briefly with the operations in Catalonia, Mr. Fortescue passes to the events which succeeded Moore's departure. Some fresh evidence throws a new light on the difficulties with which Cradock, who was left in command in Portugal, had to contend, and the important effect of Canning and Frere's blunders which prevented a landing of British troops at Cadiz is fully explained. The following chapter contains an account of the operations undertaken by Wellesley to clear Portugal of the French. The reasons which induced him to attack Soult at Oporto in preference to Victor at Merida are admirably explained. As an example of the study which Wellington gave to tactical methods, and of the care which the author has taken to record details which to many might appear of little or no value, attention may be drawn to the description of the novel distribution of riflemen in the first order of battle, which consisted in the allotment of a company to each brigade, this being, in Wellington's opinion, the best method of combating the tactics of the French.

Mr. Fortescue is particularly happy in his description of the disturbing effect the British Army, backed by British naval supremacy, had on Napoleon's calculations, and he shows how Moore's march to Coruna first led Soult and Ney into the north-west corner of the Peninsula, and then tempted Napoleon to commit the serious blunder of keeping them there in order to close the ports of Coruna, Vigo, and Ferrol to the British fleet before he had conquered Portugal.

The Talavera campaign is next described. As Mr. Fortescue points out, the campaign was, perhaps, more remarkable for the internal quarrels of the generals on either side than for the actual fighting; and while we may agree that the British commander showed himself somewhat impetuous and over-confident, we see that he alone realized the out-

standing lesson of the operations, which was that final victory would be practically assured to the army which should first overcome the difficulties of transport and supply.

Mr. Fortescue's account of the general effect of the various expeditions undertaken in 1809 on the Government and House of Commons is both illuminating and instructive. He notes, as an interesting comment on the qualification of the Commons to deal with military matters, that a reduction of the Royal Wagon Train, on which the transport of the Army depended, was considered the best way to overcome the opposition to the passage of the estimates. Before a return is made to the scene of regular operations in Portugal, Mr. Fortescue devotes a good deal of space to describing the minor operations which took place throughout Spain during 1810, the chief characteristic of which was the futility of such as were attempted by the Regular Spanish troops, and the success of the guerilla bands which now began to make their appearance.

In Chap. 36 a very interesting description is given of Wellington's staff and the method in which business was conducted. From this we learn that Wellington was in reality his own Chief of the Staff, that he conveyed his orders as to the movements of the army mainly by means of private letters, and that he was very jealous of any intervention by the members of his staff. In the matter of intelligence also he appears to have kept control of the various agencies employed, and to have received their reports himself. Amongst many other interesting details contained in this chapter, the relations existing between the Government and Wellington are examined and discussed. Mr. Fortescue shows that Wellington did Ministers less than justice, and while ready to admit that the Commander-in-Chief may have had grounds for mistrusting them, he contends that the men who, in spite of three military failures—on the Scheldt, on the Tagus, and in the Bay of Naples—boldly took up the reins of Government and still maintained the war, are as much to be honoured as the commander who carried out their policy. An admirably lucid description of the somewhat complicated manœuvres carried out by the British forces in the first half of 1810, culminating in the battle of Busaco, followed by the retreat to the lines of Torres Vedras, is then given; while the two final chapters of the volume deal with events in the East Indies.

An account of the mutiny which took place in the East India Company's force in Madras, which might have had disastrous effects had it succeeded, is included. It would appear that the disturbance was mainly due to a change of policy on the part of the Company enforced by an unwise and unsympathetic Governor.

An agreeable contrast to the above is the story of the expedition to Java under Sir S. Auchmuty, and of the operations which ended in the capture of that island.

To do justice to such a work as this within the limits of space available is impossible. All that has been attempted here has been to show the ground covered by the volume, the care with which Mr.

Fortescue has examined all available sources of information, the pains which he has taken to weigh the evidence thus obtained, and the impartiality which marks the conclusions at which he has arrived.

The Battle of Saint Privat and the Operations leading up to it. (*La Manœuvre de Saint Privat.*) By General Bonnal. Vol. III. 491 pp., with 22 maps. Paris, 1912. Chapelot. 9s. 6d.

This volume is of absorbing interest, and will be welcomed as yet another valuable contribution to military literature from the pen of its distinguished author.

Six years have passed since the publication of the last volume of General Bonnal's work on the 1870 campaign, in which he made an exhaustive study of the battle of Rezonville. The delay in publishing the present volume, which discusses the operations on the 17th and 18th August, 1870, has not been altogether disadvantageous, as it has enabled General Bonnal to peruse the German General Staff account of the events of the 18th August, which has recently made its appearance, and to deal with a number of points raised in it.

In the opening chapter of the present volume the events of the 17th August are described, and the orders given on both sides are discussed at some length. The action of Bazaine during the day is severely criticized, and General Bonnal gives it as his opinion that a resolute commander placed in the same circumstances as Bazaine would have issued the following orders on the night of the 16th August :

At daybreak on the 17th the 4th Corps followed by the 6th, both moving as concentrated as possible, to march viâ Conflans to Spincourt; the 3rd Corps to move viâ Gravelotte on Briey, and thence to Xivey-le-France; the 2nd Corps, followed by the Guard, to march by the Gravelotte-Woippy road to Longeville, and subsequently the two Corps to go by Uckange to Pontoy; the troops to march as light as possible, and all vehicles not absolutely necessary to move to Metz on the roads becoming clear.

According to General Bonnal's views, had some such action as that just described been taken the situation might have been saved.

In discussing the proceedings of the Germans, von Moltke is warmly praised for appreciating the situation as he did, and for realizing that Bazaine's forces were incapable of retreating to the north-west, and that they would inevitably retire into Metz.

In the following chapter the events of the morning of the 18th August and the orders issued on both sides are exhaustively dealt with. Next comes a chapter of comparatively minor importance which is mainly devoted to giving a general description of the battle of Saint Privat. In General Bonnal's opinion the battle really consisted of three distinct engagements, namely :—

- (a) The fight at Gravelotte on the French left.
- (b) The engagement at Verneville in the centre.
- (c) The fight at Saint Privat on the French right.

And the three following chapters deal at length with these three

phases of the battle. The various incidents are described in considerable detail, and on almost every page General Bonnal gives his comments, which are always interesting and, in some cases, very original. The point that possibly strikes one most in reading General Bonnal's account of this battle is the extraordinary ineptitude of the French commanders in general, and of Marshal Bazaine in particular. The Marshal, as described by General Bonnal, appears to have been totally lacking in every quality which a soldier ought to possess. General Jarras, who was Chief of the Staff of the Army of Lorraine, says that Bazaine "was absolutely incapable of giving a clear order," and further adds that "Bazaine was perfectly aware of his military incapacity, and therefore determined to leave things to chance." Another statement made by General Jarras is that, when at mid-day on the 18th August he heard the sound of heavy fighting, he went to Bazaine and suggested that the Commander-in-Chief should proceed to some point whence he could see what was going on, whereupon Bazaine told him that there was no need for haste, and that he had better go on with the preparation of certain promotion lists, the issue of which was overdue.

Discussing the failure of the first German attack on Saint Privat, General Bonnal says it was due to—(a) Want of proper reconnaissance of the ground ; (b) bad disposition of the troops ; (c) too dense formations ; (d) the making of a succession of disconnected attacks without proper co-operation between the artillery and infantry, and without proper preparation. He adds that, in consequence of the severe losses sustained by the Prussian Guards on this occasion, a theory has sprung up that wide open spaces are unsuitable from the point of view of an attack, and should be avoided at any cost. With this theory General Bonnal is in total disagreement, for he considers that open ground favours the combination of the three arms, and is therefore advantageous to the attackers, though, of course, on this kind of ground, as on every other, it is essential that the attack should be made by stages, and that the enemy's resistance should be beaten down by fire before an assault is attempted. The Prussian Guards at Saint Privat apparently thought that they could cross at one rush the 2,000 yards separating them from the enemy's position.

An interesting chapter is devoted to a consideration of the methods by which the German armies were fed during August and September, 1870. The whole German system of supply in 1870 is very fully dealt with, and the chapter is well worth study.

The general conclusions which General Bonnal arrives at with regard to the battle of Saint Privat and the operations leading up to it may be briefly summarized as follows :—

(1) As regards the strategical operations, General Bonnal is strongly of opinion, in spite of all that may be said to the contrary, that von Moltke intended, if circumstances were favourable, to try and bring about the situation which actually existed after the battle of Saint Privat. He further considers that, in thus endeavouring to carry

out as far as possible a scheme of operations deliberately prepared before the outbreak of war, von Moltke followed the example of Napoleon. The author does not think that Napoleon's statement "I have never had a plan of campaign" is to be taken literally, and in support of his views analyses briefly the Emperor's methods in the 1805, 1806, and 1809 campaigns.

As regards the strategy of the French, General Bonnal is of opinion that, had the French on the 22nd and 23rd July, 1870, marched with all the forces available near the frontier via Sarrebruck on Mayence, the operations of the German armies would have been seriously interfered with. Having failed to do this, the French should have defended successively the lines of the Moselle and Meuse with the object of enabling fresh bodies of troops to be concentrated either behind the Lower Yonne or to the south of the Middle Loire.

(2) The initiative shown by the subordinate leaders in the German armies, although it resulted in bringing on the battles of Spicheren, Wörth, Borny, and Rezonville, contrary to the plans made by the higher commanders, was one of the main causes of the German successes. On the French side professional incapacity led to fear of responsibility, and to the stifling of any kind of initiative. General Bonnal considers that the inferiority of the French to the German officers was directly traceable to faulty peace training.

(3) As regards the infantry of the two nations, it is pointed out that, owing to the inferiority of their rifle, the Germans were frequently under French infantry fire at ranges of from 800 to 1,000 yards without being able to reply to it. For example, on the 18th August, in the fighting round the Bois de la Cusse, near Chantrenne farm, and on the Saint Privat glacis. This very serious disadvantage was counteracted by the admirable way in which the Germans utilized every inch of cover afforded by the ground. General Bonnal, however, considers that the German infantry soldier was too much of a machine, with the result that, when deprived of the supervision of his officers, he was distinctly inferior to the French infantryman. General Bonnal goes even further than this and says that, whenever the German infantry in equal numbers and unsupported by artillery were opposed to French infantry, the latter showed themselves invariably superior. The tactics of the French infantry are, however, severely condemned. Marshal Niel, who was responsible for these tactics, was, it is explained, an engineer who based his theories of battle on mathematical calculation, and took no account of any considerations of *moral*. For example, the Marshal laid it down that, as the French rifle had a superior range to the German, it was quite impossible for a line of German infantry to approach an opposing line of French infantry soldiers. It was, therefore, considered that the French infantry should, whenever possible, entrench themselves and rely on their fire to check the advance of the Germans, and that any forward movement out of the trenches was undesirable.

On the other hand, General Bonnal points out that the French (1843

infantry on many occasions, when hasty entrenchments might have been of great value, failed to make use of them. The great mistake, however, made by the French infantry was in not taking advantage of the superiority of their rifle to attack the German artillery, for, according to General Bonnal's view, "It cannot be too often repeated that the French infantry in 1870 were beaten by the German artillery either acting alone or in combination with their infantry."

(4) The superiority of the German artillery was overwhelming not only in the matter of matériel, but also in many other respects. General Bonnal considers that the German artillery officers had the following advantages over the French :—

- (a) Their methods of fire were excellent, and their system of ranging was thoroughly practical.
- (b) They had a tactical doctrine.
- (c) They realized the necessity of sacrificing everything in order to support their own infantry.

General Bonnal adds : "Once again I must repeat that the German artillery played the principal part in the battles of August, 1870, and that, if it were possible to imagine the German guns as non-existent, the struggles of the 6th, 14th, 16th, and 18th August would have resulted in victories for the French, and this in spite of the remarkable ineptitude of the French higher commanders and the hopeless want of organization which existed in the army of the Rhine."

As regards the French artillery General Bonnal says that their gun, as compared with the German, was "of about the same value as a child's toy." The fuzes used, moreover, could only be timed to burst at 1,500 and 2,900 yards. Commanders of batteries had no regular system of ranging, and distances were usually estimated by eye. In addition to this, most of the French artillery officers had no idea of tactics, and it was considered that a battery was exceedingly well handled if its position was frequently changed, the object of this being "to deceive the enemy, to prevent him from ranging accurately, and consequently to avoid losses in the battery."

As regards the French machine guns, they were generally used as artillery, and were, moreover, placed in positions where they attracted the fire of the German gunners, with the result that "In nine cases out of ten they had to be immediately withdrawn from the fight."

(5) Speaking of the German cavalry, General Bonnal says that since Waterloo the Prussian Government had spared no pains to produce a suitable type of horse for light cavalry. The result of this was that, in 1870, the Prussian cavalry was irreproachably mounted and, in addition, the officers and men were in some respects excellent. The superiority of the German over the French cavalry, however, was principally to be found in the manner in which the former carried out the service of exploration and protection.

The work of the Prussian cavalry in the battlefield was, in almost every case, open to serious criticism. General Bonnal considers, for example, that many opportunities for successful cavalry action were

lost by the 5th and 6th Prussian cavalry divisions during the fighting on the 16th August, which showed that the commanders of these divisions were totally incapable as cavalry leaders.

As to the French cavalry General Bonnal's view is that they had only one good quality, namely, bravery. The tactical employment of cavalry on the battlefield was understood by no one, and the use of cavalry for reconnaissance purposes was only very rarely attempted. Between the 15th July and the 15th August only one cavalry reconnaissance was carried out. The reconnoitring party on this occasion consisted of a troop of the 3rd Chasseurs d'Afrique, which was sent out by Colonel (afterwards the famous General) de Galliffet; but such a procedure was so unusual in the French Army that the party was mistaken by their own comrades for Prussians.

(6) General Bonnal naturally speaks in the highest terms of the efficiency of the German Staff, which he attributes mainly to the fact that von Moltke was retained in the appointment of Chief of the Great General Staff for 31 years, and that consequently a continuity of doctrine, method, and thought in the General Staff was possible.

In General Bonnal's opinion the most important point in the German Staff system is that General Staff officers are entirely relieved from any kind of administrative work.

The author is very severe on the French Staff of 1870, whom he describes as "Civilians in uniform," because "they lived in their offices, never rode if they could avoid it, and had only paper dealings with the troops."

He tells a story of a certain lieutenant-colonel who was Chief of the Staff of a division of the Army of the Rhine, and at the beginning of the campaign of 1870 was marching with his division "mounted on a horse which was so old that it could not trot." In the course of the march the lieutenant-colonel sent for the Staff officers of the division and addressed them as follows: "Gentlemen, you know much more about war than I do. Consult together and act for the best. I approve in advance of anything you may do."

The Ulm Campaign. By Colonel F. N. Maude, C.B. 264 pp., with maps and plans. 8vo. London, 1912. Macmillan. 5s. net.

Before dealing with the events of the campaign itself the author first discusses the gradual evolution of the Austrian Army, which, as he points out, was essentially different from that of the British. The failure to recognize this fact has, in his view, been the cause of much unfair criticism. The key to the situation is to be found in the hold which the so-called "Laws of Warfare" had obtained over the minds of all classes during the eighteenth century. The practical outcome of these laws was to tie the hands of every commander, except those of the French Army, to such an extent that they were never able to contrive the strategic situations which would have justified the traditional tactical method of acting on the defensive, while as regards the tactical defeats which the Austrians experienced about this time

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and for long afterwards, Colonel Maude shows that the real cause lay in over-concentration, which made the issue of timely orders an impossibility. Finally, the inability of the sovereign to accompany the field army made for delay, owing to the necessity of referring questions over a long line of communications, and it was to this cause that the habit of postponing decisions, culminating in irresolution on the march and in presence of the enemy, is to be attributed.

The following chapter deals in a similar way with the French Army, and the author shows how its development followed on different lines from that of Austria, with the result that when destiny brought them into opposition it had become a much more mobile and efficient weapon for war.

Colonel Maude then proceeds to discuss the political factors which influenced Austrian operations. In those days the desire of every ruler was to extend his estates at the expense of his neighbours by marriage, barter, or force. At the outbreak of the French revolutionary wars the effect of this process, which was in full operation, was to interfere materially with political frontiers and to modify essentially the conduct of military operations. Thus the possession of Ansbach by Prussia apparently forbade a French offensive from the north, and to this fact, combined with Austrian ownership of a belt of territory stretching from the Inn to the banks of the Rhine, is to be attributed the great importance attaching to the possession of Ulm.

Colonel Maude next traces the course of the negotiations between Austria and Russia from 1803 till 1805, and explains, first, how it came about that Mack was appointed Chief of the Staff in the latter year, and then the dispositions he made for opposing the French. He is at considerable pains to defend the Austrian Chief of the Staff from the charges of incapacity of which he has been the object, and maintains that it was the want of a real national spirit as driving force to the army which was the fundamental cause of failure. From the available evidence, however, it seems to have been due quite as much to Mack's unaccountable optimism. Yet the lamentable state of the Austrian Army must have been quite evident to him, and the violation of Ansbach was also a possibility to be considered. The fact that he largely underestimated the strength of the French forces and gave the Russians credit for a mobility which they did not possess is also noteworthy.

The different manner in which the situation was dealt with in France is very clearly shown. Various causes had led Napoleon to avoid war with Austria till late in 1805, but once having made up his mind that war was inevitable, the necessary preliminary steps were at once put in hand.

From the orders of march issued to his different Corps and from other evidence, it is quite plain, as Colonel Maude points out, that Napoleon expected to reach the Inn undisturbed, and it was only after the columns had begun their movements that he realized that the Austrian and Russian preparations were far advanced, and that it might be possible for the Austrians to anticipate him on the Rhine,

in which case his concentration might become impossible before collision took place. The march of the various columns was at once modified so as to ensure their concentration, and not, as has so often been said, in order to avoid the Black Forest or to carry out the manoeuvre of Ulm at a time when there was no reason to suppose Mack would go there.

The author only touches lightly on the actual march from the Rhine to the Danube, but sufficient is said to show the unexpected difficulties with which Napoleon had to contend, owing to an abnormally wet season and the want of a capable staff. He then reverts to the Austrian movements up to the battle of Elchingen, and quotes largely from the "Justification" which Mack issued after the campaign, still apparently with a view to showing that the latter was not so incompetent as has generally been thought. Even if it be admitted that Mack was faced by circumstances of extreme difficulty, the account referred to above is so full of contradictions that few will be found to dispute the verdict which has been passed on him. One example will suffice to show the confused state of his mind. On the 12th October the news of the approach of several of the enemy's columns to the Iller convinced him, he says, that the main body of the enemy was turning towards Ulm, while a few lines later he still believes that the chief efforts of the French are directed against the Russians, and that he has only a detachment of observation to deal with.

Colonel Maude shows that equal uncertainty as to the enemy's movements existed at the French Headquarters. In fact Napoleon's conviction that the Austrians would attempt to escape to the south led him to dispose his Corps in such a way that a great opportunity to march east by the left bank of the Danube was offered to them. During the description of the movements which took place at this time the reader's attention is drawn to the similarity between the grouping of Napoleon's army and that of the German Army during the passage of the Moselle in 1870. The map which illustrates this comparison would have been clearer had different colours been used to distinguish the two periods.

In the final chapter Colonel Maude summarizes the teaching of the campaign, and the conclusions at which he arrives. In the first place he believes that the doctrine of frontiers had no part in the formation of Napoleon's plans, for he could have had no idea at the time where Mack would be found. As regards the latter, he considers that it is only on the hypothesis that he was prepared to find his direct communications cut that his conduct becomes intelligible.

He also criticizes Napoleon for having only brought some 40,000 men within striking distance at the place and time of the decision after marching 200,000 some 300 miles, and he attributes this to the fact that Napoleon had not yet devised the system, *i.e.*, the lozenge formation, which gave him such signal results in some of his other campaigns.

One of the most interesting points made in the course of this chapter is the fact that the Austrians must have suffered greater inconvenience

from the weather than their opponents, and Colonel Maude describes his own experience when traversing the ground in weather which bore a striking resemblance to that of 1805.

Whether Colonel Maude will succeed in converting students to his views is perhaps doubtful, but the fact that the careful study which he has made of this campaign has led him to conclusions which differ from those commonly held increases the interest of the book.

Letters and Documents concerned with the History of Joachim Murat. (*Lettres et Documents pour servir à l'Histoire de Joachim Murat.*) Published by Prince Murat. Vol. VI. Murat, Grand Duc de Berg as Lieutenant-General of the Spanish Kingdom (April-July, 1808); and as King of Naples (15th July, 1808-1st February, 1809). 515 pp., with a portrait and index of letters. 8vo. Paris, 1912. Plon-Nourrit. 6s.

The documents in this volume consist of two series, dealing respectively with the end of Murat's command in Spain and the beginning of his reign in Naples.

The earlier letters of the first series (April, 1808) show the discontent which was then seething throughout the Peninsula. "The occupation of their capital and their fortresses," writes Rosetti, one of Murat's aides-de-camp, "the abdication of the king, the refusal of the Emperor to recognize the Prince of the Asturias—all these causes combined to keep the Spaniards in a state of agitation and suspense, in which a spark might easily kindle a conflagration."

This tension culminated in the insurrection of the 2nd May, 1808, when numbers of Frenchmen were massacred in the streets of Madrid. The situation was for a time critical, but Murat's measures were prompt and adequate, and the rising was soon quelled. This episode and the stern acts of repression which it involved form the subject of many of the letters during May, 1808.

Murat's sudden illness came at a critical moment for the French cause. Risings had occurred at Saragossa, Valencia, and Badajoz, and French troops were being hurried to the threatened points. His illness caused an unfortunate relaxation of control. "The Emperor considers," writes Berthier, "that had it not been for your illness the six Madrid divisions would have acted with greater energy;" and in his next letter he authorizes Murat to return to Bayonne. Here his elevation to the throne of Naples was formally ratified by treaty on the 15th July.

Matters of interest from a professional point of view in this series of letters are the steps taken to quell the rising in Madrid (3245), the Emperor's prohibition of small detachments except as mobile columns (3224), and Murat's views on artillery with flying columns (3380).

In the second Neapolitan series of letters the chief military event is the attack on the island of Capri, where a hostile standard floated within sight of the new king's capital. Murat's orders for the expedition provide for every detail, and his letters give a vivid picture of the siege

and of the attempts of the British to relieve the fort. His enthusiasm at the capture of the place is marred by chagrin at the escape of its garrison. General Lamarque clearly exceeded his orders in allowing Colonel Hudson Lowe and his men to pass over into Sicily, and Napoleon styles this act of generosity to his future gaoler as a piece of stupidity. The letters also deal at length with preparations for the expedition to Sicily, and rumours of a British diversion in Calabria.

The dominant note in Murat's letters from Naples is his fervent loyalty to the Emperor, which contrasts strongly with the latter's persistent distrust.

The Campaign of 1815. From Waterloo to Paris. (*La Campagne de 1815: De Waterloo à Paris.*) By Louis Navez. 184 pp. 8vo. Brussels, 1912. Lebeque. 1s. 7d.

This book, which is a sequel to the work entitled "Quatre Bras, Ligny et Wavre," by the same author, deals with the operations of the French and Allied Armies from the 19th June till the conclusion of peace in November, 1815. The events following on Waterloo, though historically of secondary importance, present many situations of interest to the military student. Firstly, there are the orders issued by Napoleon from Philippeville on the day after Waterloo, and from Laon on the next day. Grouchy was to retire with his unbeaten troops viâ Rethel on Laon; the 5th Corps (Rapp) in Alsace, the army of Belfort, and the army of La Vendée were to concentrate by forced marches on Paris; Soult was to rally the débris of the army at Laon; the commandants of the Meuse fortresses were to be prepared for attack and were to resist to the last.

Nothing, it is evident, was further from the Emperor's mind than an abandonment of the struggle. His estimate, written at St. Helena, that he would have had 80,000 men by the 26th June and 120,000 men ten days later, was, no doubt, as the author considers, intentionally optimistic. The same may be said of the delaying power he attributed to the frontier fortresses which the Allies merely masked and passed by. Nevertheless, if the Chambers had stood by him and supplied him with fresh resources he might still have repeated the strategy of 1814 and prolonged the war, though its ultimate issue could scarcely have been different. Napoleon's departure for Paris on the 21st June was not, therefore, the author maintains, an act of callousness or cowardice, as it has been so often represented.

Jomini, in a passage which is cited by M. Navez, supports this view, and contends that the Emperor's presence in Paris was necessary to concert with the Ministry for a national rising against the invaders. The remains of the Army of the North were, he asserts, no more than a rearguard, the conduct of which could well be entrusted to a subordinate general. The pivot of the war was at Paris, not with the Army.

The failure of the Allies to cut Grouchy off from Paris is attributed by M. Navez to the slowness of the Anglo-Dutch Army, whose lack

of mobility seems, however, adequately accounted for by the reason given in the Duke's letter to Muffling, viz., the paramount necessity for maintaining discipline in his heterogeneous force. Requisitioning was only allowed under severe restrictions in the Anglo-Dutch Army, and was carried out solely by the intendants; whereas the Prussian troops, living freely on the country, were naturally more mobile.

Another interesting situation, which gives us a parting glimpse of Napoleon as a general, is that of the 29th June. The Prussian Army had reached Bourget and was reported, though incorrectly, to have crossed the Seine below Paris, thus putting that river between themselves and the British. Napoleon, who was then under surveillance at Malmaison, either misinformed as to the exact situation or divining Blücher's intentions from a knowledge of the old marshal's impetuous character, sent a final offer to the Commission Gouvernementale to place himself once more at the head of the French Army to win one more victory, which would gain time and better conditions of peace, and then to resign the command into their hands. The offer was rejected at the instance of Fouché, and Napoleon left Paris for Rochefort never to return.

The narrative concludes with a treatise on the after-effects of Waterloo upon the nations of Europe, followed by an appendix, in which some recent books on the campaign of 1815 are criticized.

Gettysburg Campaign, and Campaigns of 1864 and 1865 in Virginia.

By Robert M. Stribling, Lieutenant-Colonel of Artillery, C.S.A. 8vo. 308 pp. Petersburg, Va., 1905. The Franklin Press Company.

The writer has adopted the method of treating each campaign mainly from the point of view of the army which was the aggressor. Thus the Gettysburg Campaign and Early's Valley Campaign are dealt with from the Confederate standpoint. It is in the sketch of these two campaigns that the chief interest of this volume lies.

Colonel Stribling finds the initial cause of the failure of Lee's campaign in the "misdirected aggressive energy" of Stuart's column and the apathy displayed by the two cavalry brigades left behind under Robertson. He argues that the former was only authorized to ride round the Federal Army if he found that Hooker remained stationary, and that Lee counted upon Stuart always being in front of Hooker, and so able to give him information of every movement of the enemy.

Early had been detached to York in order to keep the enemy East of the South Mountain, whilst Ewell was to march on Harrisburg. As the Susquehanna was fordable above and below this city, its capture seemed certain. Lee would then have been in a position to cut the lines of communication between the capital and the North, and the author thinks that it was his intention to move his army across the river and threaten Philadelphia and New York "With nothing in that direction to oppose him but militia hastily and reluctantly gathered,"

The concentration at Gettysburg was ordered because information came in that Hooker was moving westwards towards the South Mountain passes in order to cut the Confederate line of communication. At Gettysburg, Lee would be nearer to Baltimore and Washington than his adversary, and unless Hooker promptly fell back, could interpose his army between these two cities and the Army of the Potomac. At the same time he could open up a fresh line of communication across the lower Potomac. Lee had no intimation that the Federal plan was changed until he came into collision with Meade at Gettysburg. Had he been kept properly informed of the enemy's movements he would almost certainly, in the author's opinion, have effected the concentration on the West side of the mountain.

The author throws some fresh light upon the causes of Pickett's repulse on the 3rd July. He regards it as due to the protracted cannonade of the Confederate batteries, which was continued until their ammunition was exhausted, and to the delay of about an hour which ensued before the infantry advanced to the attack. "The battle was divided into two separate and distinct parts—the first fought by artillery without any infantry, and the second by infantry alone without any artillery."

The strategical importance of Early's Valley Campaign is clearly demonstrated, and stress is laid upon the fact that "The use of the navigable waters gave Grant all the advantages of interior lines from Washington to Petersburg." On the 10th July, Early moved forward from the Monocacy towards Washington. At 10 a.m. on the same day two divisions of the 6th Corps commenced embarking at City Point; both forces "arrived exactly at the same time." The author shows that, although Early might have appeared before Washington a day sooner, it would have made no difference to the result because he would have had to fight Wallace on the Monocacy in any case, and the order despatching the 6th Corps to Washington was only issued when it was known that the battle was in progress.

Colonel Stribling censures Early for giving battle to Sheridan at Winchester instead of falling back at once to Fisher's Hill, and considers that after this defeat Early lost the confidence of his army.

The criticism of Grant's strategy is somewhat superficial. No notice is taken of the great skill displayed when he crossed the James and initiated a movement which, with better management, might have decided the campaign. The censure passed upon Grant for his reckless use of his cavalry force after crossing the James seems, however, well founded.

A very interesting letter of Dana to Stanton illustrating the friction among the commanding officers of the Army of the Potomac in the summer of 1864 is quoted (pages 224–226).

Campaigns on the North-West Frontier. By Captain H. L. Nevill, D.S.O., Royal Field Artillery. 404 pp., with 6 illustrations, 5 maps

in pocket, and 9 plans in the text. 8vo. London, 1912. John Murray. 15s.

This volume gives short but clear accounts of all the various campaigns on the North-West Frontier of India which have been undertaken by the British, with tables of the various troops engaged.

The operations of more recent years, commencing from the Hunza-Nagar campaign of 1891, are reviewed, and the more prominent tactical lessons of each campaign are brought out and compared with the principles now laid down in Field Service Regulations, Part I.

The book concludes with an anticipation of the conditions likely to be met with in the future, and how 'modern science may assist us in our next operations.

Apart from tactical lessons, this book is also valuable as a work of reference, and for instructional purposes regarding the geographical and ethnographical features of the North-West Frontier of India.

1812: The Russian War. (1812: La Guerre de Russie. Notes et Documents.) By Chuquet. 352 pp. 8vo. Paris, 1912, Fontemoiny. 6s.

A collection of official reports, letters, and notices, and also some private letters connected with the war of 1812. Some are translated from the German, others have already appeared elsewhere in French. The source is in each case indicated.

Some of the documents, &c., especially the earlier ones, are of considerable interest. For instance, "Barclay de Tolly's Plan;" "Napoleon at Gumbinnen," in East Prussia, and his cross-examination of the local authorities as to the supplies to be found across the frontier; "Napoleon's conversation with Gouvion-Saint-Cyr," in which he discusses the plan of campaign, and states that he hopes to beat the Russians at Smolensk, and to go no further but to content himself with the occupation of the provinces detached by Russia from the ancient kingdom of Poland.

Tangier, 1661-1684. By E. M. G. Routh. 388 pp. 8vo. London, 1912. John Murray. 12s. net.

This book gives a clear and interesting account of the English occupation of Tangier in the reign of Charles II. The information contained in it is based principally on the large collection of official correspondence preserved at the Public Record Office, and of a journal written at Tangier by one John Luke, who was secretary to the Governor between 1671 and 1673.

In the opening chapter the manner in which Charles became possessed of Tangier is narrated, and it is necessary to keep this fact in mind, since it was out of his purse that the money to pay for the maintenance of the place had to come, and it was principally due to the impossibility of meeting requirements from this source that its evacuation was finally decided upon.

For the rest the story of its occupation is one of constant hostilities with the Moors, of endless changes of governors, of maladministration

and often of actual want, due sometimes to the interception of supplies by the Barbary pirates, but more frequently still to neglect on the part of the Tangier Committee in England.

To soldiers the chief interest of the place lies in the fact that it enabled Charles to form the nucleus of a standing army, and that to it the 1st Royal Dragoons, the Grenadier and Coldstream Guards, the Royal Scots, and the Queen's owe their existence.

History of the Indian Mutiny. Vol. III. Forrest. 623 pp., with map, plans, and portraits. 8vo. London, 1912. Blackwood. 20s.

The previous two volumes treat of the first period of the Mutiny up to the relief of Lucknow in September, 1857, and the subsequent events up to the capture of Lucknow in March, 1858, respectively. The present volume deals with Sir Hugh Rose's campaign in Central India, the rebellion and campaign in Rohilund, the mutiny in Western Behar and its suppression, the siege and relief of Arrah, the final campaign in Oudh, and the pursuit and capture of Tantia Topee.

This work contains much of interest to the soldier from a military and historical point of view.

In view of the unseen forces now at work in the East and the restlessness apparent in India to-day, it is well to remember how readily a society subject to religious, social, and economic unrest can be set ablaze, given a sufficiently contagious spark. Mr. Forrest emphasizes the importance of the Mutiny lessons as an indication how problems of a similar nature can best be met. Among many obvious points may be mentioned the necessity for unceasing watchfulness and prompt action; the great results—moral and material—to be gained from energy, initiative, and boldness of action; the thorough co-operation and the powers of endurance required to deal with an elusive and mobile enemy employing guerilla tactics.

Some interesting historical sketches, character studies, and extracts from official records and despatches are given, and are well worth perusal.

The Cambridge Modern History Atlas. 8vo. Cambridge, 1912. University Press. 25s.

The general idea of this atlas is to illustrate, in a series of maps, the course of events by which the Europe of the fifteenth century has been transformed into the Europe of the present day.

An excellent epitome of the changes effected by politics upon geography during the period which has elapsed since the fifteenth century forms the introduction to the atlas itself. The object which Mr. Benian set himself to perform was to summarize the series of territorial changes by which the existing political system of Europe has been brought about, and thus to trace the process of consolidation and expansion by which the States that were in being in the fifteenth century attained their present form, and the steps by which other States arose and divided with them the lands where no effective consolidation had taken place in the Middle Ages.

Thus the first map shows the Spanish Peninsula divided into five sovereignties, England into two, an immense Poland, a tiny Austria, Italy composed of a multitude of independent States, the Ottomans possessing an extensive dominion in Europe, and so on.

Through the succeeding maps we can follow the extraordinary career of Poland, and the gradual withdrawal of the Tartars into Asia. We see Italy pass under foreign dominion, to emerge triumphant in the end; while France grows steadily in extent till she rules half Europe, and then is as suddenly reduced to what she was before. Outside Europe, too, we are able to watch the steady growth of struggling colonies into the vast and unthought of empires which we now know.

In spite of some errors, therefore, of omission and commission, this atlas will be found not only instructive, but also an agreeable means for combining geography and history.

MEDICAL.

The Prevention of Disease and Inefficiency in Indian Frontier Warfare. By Lieut.-Colonel Patrick Behir, I.M.S. (Second Edition.) 655 pp., with 85 illustrations. 8vo. Allahabad, 1911. Pioneer Press. 12s. 6d.

The work is dedicated to General Sir O'Moore Creagh, V.C., G.C.B., the Commander-in-Chief in India, who has written a short laudatory preface.

The book begins with an introduction of 40 pages in which the author gives a sketch of the physical geography and climate of India, the advantages of education in military hygiene, and statistics of disease in peace and war.

Part I deals with the physical training and development of the soldier.

In the next part general hygiene is discussed. The physiology of digestion is somewhat fully dealt with for a work on hygiene.

Part III is devoted to personal hygiene, and gives a useful summary of the problems concerned. The succeeding section on "Prevention of Disease" is much too lengthy. Most of the contents should be dealt with in a work on tropical medicine, and are outside the scope of a work on hygiene.

The section on medical statistics and the sanitary service in Indian warfare are short, and refer largely to the doings of the Japanese Army in the recent Manchurian campaign.

Lieut.-Colonel Behir has certainly collected a mass of information on military hygiene, and his book should be useful as a work of reference, especially to the army officer in India.

Military Hygiene and Sanitation. By Colonel C. H. Melville, Professor of Hygiene, Royal Army Medical College. 418 pp., with 11 figures. 8vo. London, 1912. Arnold. 12s. 6d. net.

In his preface Colonel Melville states that this book is founded on the lectures which he delivered while Professor of Hygiene at the Royal Army Medical College. The work certainly conforms to its title

by limiting its scope to the problems of hygiene and sanitation which concern the every-day life and work of the soldier in peace and war. These are discussed in a light and refreshing style, which at the same time brings home to the reader the immense importance of hygiene and sanitation in the maintenance of an efficient fighting force.

In the limited space of a review it is impossible to notice all the contents of the work. The introductory chapter is to be specially commended to Army medical officers, and more especially to those who have recently entered the service. The chapters on sanitary organization, physical training, marching, food and rations, clothing and equipment, should be carefully read by every officer in the Army, irrespective of rank or branch of the service. The remaining chapters might well be read with profit by all officers, although they are presumably written for Army medical officers.

Colonel Melville is to be congratulated on having presented a masterly survey of this all-important subject in a form which makes it a pleasure to read, which is the secret of successfully imparting instruction. We can confidently recommend the book to all officers of the Army. A copy placed within reach of the orderly officer might assist him to employ his spare time with profit to himself and ultimately to the Army in general.

Improvised Methods of Aid in the Field. (Second Edition.) By Lieut.-Colonel H. Mackay, R.A.M.C. (T.F.) 156 pp. 8vo. 81 illustrations. London, 1912. Eyre & Spottiswoode. 1s. 6d.

The fact that a second edition of this manual has been called for so soon after its original appearance shows that the book has met a much felt want. In this edition besides some re-arrangement of the text 56 new pages have been added. In the diagram opposite page 34, showing the scheme of medical assistance for a division of the Expeditionary Force, the term "infantry division" is still retained; this might have been corrected.

The author has collected all the best methods of improvisation, and gives a clear working description of them in a handy pocket manual. It should prove of the greatest value to all voluntary aid detachments, the members of which should be grateful to Lieut.-Colonel Mackay for having placed this work within their reach.

Textbook of Military Hygiene. Vol. III. (Lehrbuch der Militärhygiene. III Band.) By Professors Hoffmann and Schwiening. 496 pp., with 2 plates and 169 illustrations. Berlin, 1911. Hirschwald. 8s.

The first part of the third volume deals with barracks, hospitals, and all kinds of temporary accommodation which may be used for the soldier; the second part discusses the hygiene of military service. In the section on barracks numerous plans of existing barracks and huts have been reproduced. The double-company building with annexes is being adopted in the newer barracks. The internal arrangements are very fully described.

The section on the hygiene of military service opens with a short comparison of the different systems of recruiting. In this it is pointed out that the worst system of recruiting is that by voluntary enlistment, as owing to the poor social standing of soldiers in an army enlisted on these lines, only a small proportion of the population, usually consisting of its less efficient members, is willing to enlist, also the recruits obtained are of different ages and of varying physique, and join at different times, all of which factors militate against the formation of a homogenous army. The physiology and mechanism of marching and the effect of training generally, as well as in each arm of the service, are fully discussed. The volume is quite an encyclopædia on the subjects dealt with.

Textbook of Military Hygiene. Vol. IV. (Lehrbuch der Militärhygiene. IV Band.) By Professors Bischoff, Schwiening, Hoffmann, and others. 515 pp., and 39 illustrations. 8vo. Berlin, 1912. Hirschwald. 8s.

This volume, the fourth of the work, deals with Army diseases and disinfection.

It begins with a general account of the aetiology of infectious diseases and their prophylaxis. The next section gives a very thorough account of disinfection and all the methods of carrying out this procedure. The following chapter on immunity is extremely good, but is naturally of a highly technical nature. A long chapter is devoted to a thorough description of infectious diseases and the prevention of their spread.

The last chapter deals with non-infectious diseases of the soldier. The descriptions of heat stroke and sore feet would probably appeal most to the lay reader.

As a work of reference for a sanitary officer the book is excellent. Most of its contents would probably be too technical to interest a layman.

MISCELLANEOUS.

War and its Alleged Benefits. By J. Novikow. 151 pp. 8vo. London, 1912. W. Heinemann. 2s. 6d. net.

This translation commences with a laudatory preface by the author of *The Great Illusion*, who tells us that although Mr. Novikow and he were strangers to one another's writings, yet they arrived by different methods at the same conclusion—a belief in the folly of war.

The outlook on life of the author of the work under notice may be gauged from his statement that "The goal striven for by every human being is enjoyment." The idea that enjoyment is the be-all and end-all of existence is alien alike to those who believe that war cannot be eliminated from the world as to those to whom the fundamental reason for not fighting was the sense of duty as between man and man.

Sacrifice of self forms, it will be seen, the underlying idea of both these schools of thought, and there can hardly be two opinions as to the merits of this philosophy as compared with that of which Mr. Novikow appears to be one of the leading exponents.

Some of the arguments which the author puts forward in support of his views on war are as unconvincing as they are astonishing. He contends, for instance, that after frightful carnage an adjustment is reached by the belligerents, and a *modus vivendi* found equally acceptable to all the parties involved, and the solution is due to a feeling for justice and not to the preceding war. It would have been of interest had he quoted some instances in support of his theory.

Some of Mr. Novikow's references to England are, to say the least, unfortunate. Thus we learn that "Since the Crimean War the average number of deserters from the English Army has never been less than one-fifth of the recruits. Sometimes as many as one-half has deserted."

It may be said that a book which contains such statements cannot be worth the trouble of perusal. With this contention we do not agree, for it is by studying the works of these new prophets of peace that we shall best realize how uncertain are the grounds on which they base their arguments.

An Historical Sketch of the Predecessors of our Mounted Infantry, Horse Archers, Mounted Arquebusiers, and Dragoons. By Major H. G. Purdon. 74 pp. 8vo. Preston.

The title of this sketch is a little misleading. Its object is apparently to show the connection between the horse archers of the reign of Henry I and the Mounted Infantry of the present day.

The demand which has existed from the earliest times for troops accustomed to fight on foot but capable of regular movement on horseback is fully brought out. The author depends very largely on modern writers for his facts, and quotes them freely. This is in many ways an advantage, as the authority for each statement is given, and we see the sources from which the information is obtained. To those who are interested in tracing the development of armies this little book should prove of interest and value.

Handbook to Promotion Examinations and Local Courses of Musketry. By Captain W. D. Allan. 151 pp. 12mo. Edinburgh, 1911. Oliver & Boyd. 2s. net.

This book consists of a collection of notes on the syllabus of Examination B and local course of musketry for Territorial Force officers. It is divided into five chapters, each of which discusses one of the subjects dealt with in the examination. It is difficult for books of this nature to be up-to-date, and there is consequently a danger that officers who rely on it may find themselves behind the times. The chapter on organization gives a lot of details of little practical value, and a more intimate knowledge of organization would probably be derived from a study of recent reports on the examinations for the Officers Training Corps and Special Reserve.

The Entrance Examination Papers for the Staff College, 1912. (Die Aufgaben der Aufnahmeprüfung 1912 für die Kriegsakademie.) By Major von Krafft. 62 pp., with 2 figures in the text. 8vo. Berlin, 1912. Mittler. 1s. 6d.

The papers comprise questions on the following subjects: Military history, tactics, arms and ammunition, fortification, reconnaissance, sketching, history, strategical geography, languages, and mathematics. Solutions to all questions are given.

A paragraph is inserted at the end calling attention to the amendments of the qualifications required by candidates for the Staff College.

ORGANIZATION.

Organization. By Colonel Hubert Foster, R.E. 267 pp. 8vo. London, 1911. Hugh Rees. 3s. 6d. net.

In his preface Colonel Foster explains how his inability to find any work dealing systematically with army organization induced him to compile the present book, and it is unquestionable that the subject has not been handled in such a way as to present any very clear idea of its real meaning and significance. In the work under review the author has confined his attention to giving a general account of organization for war only, for, as he says, the inclusion of organization in peace would open out too wide a field of discussion.

In his first chapter the author explains what is meant by organization and why it is necessary, and he then describes the various kinds of troops which go to form an army, their methods of fighting, and functions in war, these being necessary preliminaries to a consideration of the units and formations of which a modern army consists. As however, changes have taken place in the British service since the book was published, it is necessary to warn the reader that some of the information contained in it is not strictly accurate, and we cannot accept the view that it is impossible to group a variety of troops which are mentioned in Chap. 4 under any one of the old heads of the three arms, the effect of which would be to make "command"—which it is the object of organization to facilitate—a far more difficult question than it now is.

The author then explains how, as the result of past experience and of a forecast of future needs, the various units are combined into smaller formations, and how these again are combined into larger formations constituting what are called subordinate commands, the essence of which is that they are capable of independent existence and action. Their administrative services and staffs are also described in sufficient detail to enable one to obtain a good idea of their essential features. The final chapter of this Part explains the object and utility of war establishments, the importance of preserving the original organization of a force, the evils of improvisation, and lastly, the meaning and use of an *Ordre de Bataille*.

Part II deals entirely with British war organization, and is therefore

concerned mainly with the Expeditionary Force, which has, however, been modified in certain details, chiefly those connected with transport and the service of intercommunication, since the book was published. The special features of this organization, their object, and the advantages claimed for them, are well explained.

In Part III the author gives a brief description of the war organization of foreign armies, which, with the exception of that of the United States, follow the same general plan. This Part is followed by a short history of the developments of organization since the introduction of fire-arms, in which Colonel Foster shows that modern organization dates from the close of the Feudal epoch in the fifteenth century, and that Italy was the country in which it originated, and to which most military terms may be traced. Having first outlined the growth of the earliest regimental organization from the companies of which permanent Regular forces were originally composed, he proceeds to give an account of the evolution of each arm in turn, followed by a description of army organization in the seventeenth and subsequent centuries. A separate chapter deals with the evolution of the Staff and administrative services.

Part V is devoted to a consideration of the principles of command and the psychological characteristics of armies. The reason for touching on these subjects becomes obvious when it is remembered that the chief object of organization is to facilitate command. The extent to which the method of command has been modified in consequence of the growth of modern armies is explained, and the difference between "instructions" emanating from the supreme commander and the "orders" issued by subordinate commanders is made clear.

An appendix contains an explanation of the way in which military terms came to have their present technical meaning, together with their country of origin and derivation. This appendix forms a very interesting addition to a work which, even without it, is full of much useful information on a subject that must attract every soldier who takes an interest in his profession.

POLITICS.

The Mystery of Agadir. (*Le Mystère d'Agadir.*) By André Tardieu. 619 pp., with 1 map. 8vo. Paris, 1912. Calmann-Levy. 6s.

The author of this book is well known for his writings on Moroccan affairs, particularly for his work on the Algeçiras Conference. His history of the recent crisis is an indictment of French colonial policy on the score of vagueness and inconsistency, faults which he ascribes, in part, to fear of Parliamentary criticism and of misrepresentation by the Socialists.

The Franco-German Agreement of 1909 was, he states, interpreted by the French as giving them a practically free hand in Morocco, whereas it was accepted in Germany as establishing an economic condominium by France and Germany in the Shereefian Empire. The mistake of France lay, in M. Tardieu's opinion, in her delay in asserting the
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political rights she had acquired, and thus putting them beyond question. The French should, he considers, have exerted themselves to ensure the stability of Mulai Hafid's Government, and thus have obviated the rebellion of 1911 and the need for the expedition to Fez.

Similarly in the Congo M. Tardieu blames the Colonial Ministry for leaving the Franco-German frontier unoccupied for 10 years, and thus encouraging German ambitions in this quarter.

He also criticizes the failure of the Government to resist the claims of certain British firms, or to support its own subjects in litigation against German merchants. The proposals made by France for a Congo-Cameroons railway and for a Franco-German *consortium* to exploit the frontier districts, followed by the abandonment in 1911 of both these projects, were calculated, he considers, to cause irritation in Berlin.

Coming to 1911, M. Tardieu deals with the expedition to Fez, the despatch of the "Panther" to Agadir, and the discussions between the French and German representatives up to the 18th August. The results of six weeks' negotiations were, he points out, that no definite solution had been put forward regarding Morocco, while seven German and six French proposals had been made with respect to the Congo; France had offered to cede territory on the Ubangi, which would divide her African Empire into two parts.

In the second stage of the discussions he finds the procedure greatly improved. The question of Morocco was first completely disposed of and the amount of "compensation" in the Congo was then separately considered. This, he maintains, was the only logical method, and should have been followed from the outset.

As regards the future effects of the treaty of November, M. Tardieu is more optimistic than might be expected from the earlier portion of his book. He lays great stress on the fact that German interests in the Shereefian Empire were largely artificial, so that, although the abandonment of her ambitions in Morocco may cause some disenchantment in Germany, it has not involved any real sacrifice. On the other hand, the loss of part of the Congo is, no doubt, painful to Frenchmen, but the frequent concessions made to British, Spanish, and Italian claimants in this quarter had paved the way for such a solution. However, he points out that the treaty creates so many points of contact between the two nations, that its success must depend largely on mutual goodwill.

In conclusion, M. Tardieu traverses the suggestion that at any period during the negotiations French Ministers were tempted to abandon existing friendships or alliances, and to direct their policy into new channels. The laws governing the foreign policy of France do not, he maintains, depend on the caprices of individuals; they have resulted, as M. Ribot has expressed it, from the necessities of her situation and from the force of circumstances.

The Military Danger of Home Rule for Ireland. By Major-General Sir T. Fraser, K.C.B., C.M.G. 119 pp. 8vo. London, 1912. John Murray. 8s. 6d. net.

In this book the author briefly reviews the military history of Ireland from the time the Romans inhabited England to the present date; and, basing his opinions on the experiences of the past, he concludes that it is his duty to draw the attention of his fellow-countrymen to the danger to the Empire involved by the adoption of Home Rule in Ireland.

STRATEGY AND TACTICS.

War of To-day. Vol. I. By General of Cavalry Friedrich von Bernhardt. Translated by Karl von Donat. 396 pp., with 21 sketches in text and 5 appendices. 8vo. London, 1912. Hugh Rees. 9s. net.

The publication of this book at the beginning of the year by so distinguished an author and under the foregoing title has attracted the expected degree of notice both in Germany and elsewhere.

Although there are, perhaps, no enunciations of principle which can be claimed as entirely new, and no statements as to inventions and innovations which have not already appeared in print, still the work traverses a wide area in a condensed form, and lays stress on the main essentials in the preparation for and in the conduct of war. Its arguments are tersely put, usually convincing, and the work is worthy of careful study.

In the opening sentence of the preface General Bernhardt explains that he has attempted to condense in his pages the results of long years of study and comprehensive labour in order to give the reader a survey of the conduct of modern war.

Later he expresses his aim of arriving by degrees at a doctrine of war which will be suitable to the present period, and on which principles of future action may be established.

He pays a tribute to the work of Clausewitz, but points out that much of what he wrote was applicable only to his own time, and that it is for succeeding generations to build up a science of war on the foundations which he has laid.

In the first of the two volumes which comprise the work the foundations are discussed on which all war teaching must be built up if practical ends are to be served. The relations between experience and forethought are emphasized; the boundary line between the unchangeable "laws of war" and their changing outward forms is also indicated; while the means available for modern war, which influence and have changed the methods of higher leading, and on which it is in a measure dependent, are discussed at length.

A critical examination of the factors which govern *modern* war is not the only aim of the writer, but also an examination of those which will maintain in the *next* war, the war which "stares us in the face like an inscrutable sphynx."

As might be expected, the work contains references to the political relations of Germany with other nations, and the consequent unavoidable obligations imposed upon the nation and army. The growth of the population is compared with that of France in regard to the respective areas of both countries, and the need for widening the commercial and industrial territorial horizon, and of so providing for the needs of the people, is the conclusion arrived at.

Germany's possible enemies are marshalled in review, and the circumstances attending attack by one or several of them duly weighed.

Disbelief is expressed in Courts of Arbitration as instruments for the settlement of serious international disputes, and Germans are advised to join their faith in their swords if they are to hold their inherited position in the world.

In discussing war the writer shows that future success lies in the creation of a superior principle of action; that such action must be based on a due regard to modern developments, inventions and conditions, to the exclusion of conventional views and theories, true in a general sense and possibly for a particular period, but at the moment inapplicable owing to recent progress. A close study of political and military history, of the causes of success in past wars, of the applicability or otherwise of the elements which then led to success, will alone give a clear conception as to what is essential for the present and for the future.

After disposing of the principles and theories concerning the conduct of war and its preparation, the writer turns to the particular, and in subsequent chapters deals with: Armies by levée en masse, the economical effect on the country of their employment and the difficulties of leading and maintenance which they entail; the relations between force and numbers under varying conditions; modern arms and other offensive and defensive equipment, including railways and other technical appliances; the importance of cavalry, to which a short chapter is devoted; march problems, methods of supply and the work of lines of communication; the movement of large armies under varying conditions imposed by strategical or tactical situations; command, modern methods, limitations of commanders, moral influence, &c.; the importance of fortresses in modern war; navies and naval adjuncts in relation to modern war.

Our Cavalry. By Major-General M. F. Rimington, C.V.O., C.B. 224 pp., with index and 8 diagrams. 8vo. London, 1912. Macmillan. 5s. net.

This book does not pretend to be an exhaustive treatise on cavalry. It has been written, as its author says in the preface, principally for junior officers of all arms. There is, however, so much practical instruction and so many useful hints contained in its two hundred odd pages that it is likely to prove of value to a far larger public than that for which it was primarily intended.

The first chapter contains a very brief review of the evolution of cavalry, and enumerates the principles which appear to have guided its most successful leaders. The author has a few words to say on the subject of fire and shock action. Briefly put, his view is that, while the occasions on which fire action may be advisable are likely to be frequent under modern conditions, yet there will still be opportunities for shock action, and that the cavalry—which is imbued with the resolute offensive and a desire to “handle” its enemy first—will obtain a moral ascendancy which will be of incalculable value and may affect the whole course of a campaign. This question is more fully discussed in a subsequent chapter dealing with fire action in tactics of cavalry versus cavalry. The importance which General Rimington attaches to the improvement and maintenance of *moral*, a matter to which too little attention has been paid in the past, is indeed one of the most striking features of his book.

In the second chapter the question of the best weapon is discussed and the conclusion he reaches is that the weapon which entails least weight, is deadly, and is most likely to be useful on all occasions, is the straight sword.

The following chapter deals with the horse, and amongst other matters the author discusses what is the most suitable animal for cavalry work, he himself inclining to the opinion that we are apt to pay too much attention to height.

The next five chapters are devoted to the tactical action of cavalry. Commencing with the fight of squadron versus squadron, the author shows how important cohesion is in the charge, and that the side which can manœuvre with cohesion at the greatest pace will certainly win. He then develops the theory of the flank attack, and shows by argument, illustrated by some simple diagrams, the advantages that will be gained by the cavalry which manœuvres so as to gain ground both to front and flank as compared with another force that is merely directed straight at its objective. He shows also that this form of diagonal attack becomes all the more necessary if the cavalry is accompanied by horse artillery, in order that the fire of the latter may not be masked.

In the chapter headed “A Cavalry Brigade in Action,” the tactics of horse artillery in co-operation with the cavalry are examined and clearly explained by means of diagrams. Some valuable hints for the use of commanders of escorts to guns are also included.

The last of these tactical chapters deals with the action of cavalry in the general engagement, for which special training and practice are shown to be necessary for cavalry leaders in order to develop their power to deal rapidly with unforeseen situations.

The author then devotes a chapter to explaining the principles on which cavalry is placed in front of an army. He shows how the service of information is separated from that of security, and how the Napoleonic traditions have been revived. He is careful to point out that there is no recent experience available to prove the correctness of the present theories. Inasmuch, however, as the cavalry which is

victorious in the first great fight gains an enormous advantage for its side, the tendency to strengthen the cavalry of exploration at the expense of that allotted to security appears to be based on sound reasoning.

Other chapters discuss the action of horse artillery in co-operation with the cavalry, the duties of an outpost commander, and the importance of well-trained despatch riders.

Finally, in his last five chapters General Rimington gives much sound advice on the subject of training, whether it be the officer, man, horse, or squadron.

The author has given point to many of his precepts by an apt story, from his own experience in many cases we suspect, or by an historical example which greatly increases the interest and value of the book.

It is a work which every cavalry officer would do well to study.

The Training of Infantry with a View to the Offensive Fight. (Dressage de l'Infanterie en vue du Combat Offensif.) By Commandant de Grandmaison. 178 pp. 8vo. Paris, 1910. Berger Levrault. 2s.

This is the fourth edition of Commander de Grandmaison's remarkable book, which is well worth reading. In the preface, written by the late General Langlois, it is pointed out that the most recent wars have demonstrated the great difficulties of the infantry attack, and have shown, moreover, that decisive results are only to be gained by the assumption of a vigorous offensive. General Langlois considers it therefore obvious that the instruction of the infantry soldier should aim principally at teaching him how to act offensively over every variety of country. Since, moreover, the infantryman will in the battles of the future be very often called on to act on his own initiative, the General is of opinion that special pains should be taken as regards his individual instruction and the development of his *moral*.

A further point in the training of the infantryman to which particular attention is directed is the necessity of teaching him that, although he may be acting independently, he must acquire the habit of working in co-operation with his comrades for the attainment of the common end. Great stress is laid by General Langlois on the importance of impressing on the infantry soldier that the offensive means forward movement, and that such movement is only rendered possible at decisive ranges by obtaining superiority of fire over the enemy, by mutual support between the various portions of the attacking line, and by the infantry taking advantage of the bursts of artillery fire to press on.

The book is divided into two parts, in the first of which the author gives a short analysis of the main features of the offensive fight as deduced from the Anglo-Boer and Russo-Japanese Wars; whilst in the second the endeavour is made to indicate certain methods of instruction based on the lessons of these two wars, and to show how they can be practically applied.

Part I is further sub-divided as follows:

Chap. I deals with the vast importance of the moral factor in-war,

and Commandant Grandmaison comes to the conclusion that the most remarkable as well as the most unexpected lesson to be learnt from recent battles is that everything in war still hinges on the *moral* of the combatants.

Chap. II is devoted to a consideration of the principles of the offensive fight, and the author is of opinion that the two last wars have clearly proved that frontal attacks are quite possible, though naturally attended with difficulties. The main problem to be considered is how these difficulties are to be overcome. Commandant Grandmaison considers that the solution of the problem lies in teaching the men the proper method of carrying out advances at decisive ranges. Such advances should not be attempted until superiority of fire has been obtained, and must invariably be supported by covering fire.

In Chap. III the author discusses the various methods of approaching an enemy's position, and comes to the conclusion that the Anglo-Boer and Russo-Japanese Wars bring out—

- (a) The constant use and frequent failure of night operations.
- (b) The impossibility, when approaching an enemy's position by day, of moving in dense formations. This often led to the adoption of extended lines of attack which lacked driving power.

As regards night operations, the author insists that they should only be undertaken with a definite object, and should invariably be carried out by small bodies. Speaking of the formations adopted in the attack by day, he strongly deprecates the too early deployment of the attacking force, and also the too frequent use of turning movements, which he considers are apt to lead to exaggerated extensions of fronts.

Chap. IV is a specially interesting one, and is devoted to a consideration of the fire fight at decisive ranges, and it is noticeable that the views expressed by Commandant Grandmaison are, for the most part, in accordance with the principles laid down by our own General Staff. The main conclusions arrived at by the author as the result of his analysis of the last two wars are—

- (1) To-day as formerly the offensive fight, as far as infantry is concerned, consists in advancing to meet the enemy.
- (2) Advancing under modern conditions of warfare is often impossible, unless former methods of advance are profoundly modified, since the increased range and rate of fire of the modern rifle put a very great strain on the men.
- (3) To reduce this strain the attackers have two means at their disposal—
 - (a) Making use of the cover afforded by the ground to diminish the effects of the enemy's fire.
 - (b) Bringing to bear on the enemy such a superior fire that the latter either cannot shoot at all or can only shoot with poor results.
- (4) All the technical instruction of infantry must aim at making its formations elastic and its fire effective.

(5) The importance of the moral factor in the fight is paramount.

(6) Above all the offensive alone can lead to decisive success.

The astonishing success of the Japanese was due not so much to their superior tactics as to their admirable offensive spirit.

The second part of the book is sub-divided into five sections, which deal in a most practical manner with the training and instruction of infantry as follows :—

Section 1 discusses the training and instruction of the young soldier.

Section 2 is devoted to details concerning the instruction of the infantry soldier in shooting.

Section 3 deals with various methods of making the section elastic in its movements, and of training the company to work in extended order.

Section 4 contains the author's views as to how small bodies of infantry should be trained in offensive action.

Section 5 discusses the instruction of infantry in day and night outposts.

Ancient Principles and Modern Tactics. (Principes Anciens Tactique Moderne.) By General Bernard. 122 pp. 8vo. Paris, 1912. Berger Levrault. 2s.

This book consists of nine articles on combined tactics forming a progressive series, in the guise of letters addressed to a young officer. The first article explains the general functions and characteristics of the three principal arms. The second deals with the composition of an Army which, the author assumes, would normally consist of four Army Corps and one or two divisions of cavalry. A convenient disposition for such an Army, when concentrated or on the march, would, he considers, be the "lozenge" formation, that is 1 Corps in front as general advanced guard; 2 Corps abreast, forming the main body, to the right and left rear of the leading Corps; and 1 Corps in rear, as a reserve, covering off the interval between the 2 Corps of the main body.

It is desirable, in General Bernard's opinion, that the Army Corps destined to form the general advanced guard should be charged with the duty of *couverture* during mobilization; but when an army requires more time to mobilize than its opponents, the covering troops may suffer so severely in personnel and *moral* that they may have to be replaced, as general advanced guard, by a Corps from the main body.

In the third letter, which treats of depths and frontages, General Bernard shows no reluctance to give figures, though he adds that they must not, of course, be regarded as invariable. For the offensive screen he allows a front of 15 to 20 miles, adding 10 miles for each of the cavalry divisions on the flanks he estimates the total front of the general advanced guard during the advance at 35 to 40 miles; the frontage of the Army in battle would not, he thinks, exceed 25 miles. As regards depth he recommends that the main body of the general

advanced guard should be half-a-day's march in rear of the offensive screen, while the depth of the whole Army, including reserve, should not exceed two days' march, or 31 to 37 miles.

In the fourth letter the march formations of the Army, especially those of the general advanced guard, are described in detail. For the screen, which would normally consist of six detachments of one battalion and one battery each, he allots a complete infantry brigade, six batteries, and a squadron of cavalry, the whole under the brigade commander. The six advanced guard companies of these detachments constitute the "offensive screen." The main body of the advanced guard Corps follows 3 miles in rear of the screen, using three roads (if available) at intervals of 4 or 5 miles, the Corps artillery marching on the centre road together with the remainder of the division furnishing the screen. A width of 10 miles is allowed for the march zones of each of the main body Army Corps; the latter should have strong advanced guards, say a division each; their Corps artillery should march on their inner flanks, where it is most rapidly available for reinforcing the general advanced guard; the divisions on their outer flanks should be thrown back in échelon.

The fifth and sixth letters describe the opening of the battle by the general advanced guard (whose rôle is described as an "action of reconnaissance") and the succeeding stages of the attack. In an earlier chapter the author has calculated that, when the belligerents have a contiguous frontier, the general advanced guard will become engaged on the second day of the advance, and that by the end of this day it will be possible to give orders for the action of the two Army Corps of the main body. He recommends that, in order to avoid intermixture of units, these Corps should come up in support of the wings, not of the front, of the general advanced guard, though part of their Corps artillery may be hurried up to reinforce its front. The intervention of the artillery before the arrival of the infantry within rifle range must, he considers, produce an artillery duel of greater or less duration. He deprecates the excessive dispersion of artillery, because, for one reason, it assumes a capacity, higher than the average, in the commanders of the isolated batteries. Great stress is laid on the co-ordination of fire and movement in the attack, and on visual signalling as the only reliable means of intercommunication.

The decisive attack, which is described in the seventh letter, is delivered by the reserve Corps. The author estimates that this attack, if successful, will penetrate the enemy's line on a front of 3 kilometres (3,300 yards). If to this is added the space brought under fire towards either flank, the enemy's line will be broken along a front of 10,000 yards, an event which must involve a retirement of his whole line. The importance of having cavalry in hand to co-operate with the decisive attack is strongly emphasized.

The eighth and ninth letters deal with the services in rear of the Army, and with the principles to be observed in imparting instruction to troops and inculcating the military spirit.

The book is one that will be read with great interest by those who wish to study the theory of the "general advanced guard" expressed in a concrete form. It is as well to note, however, that the views expressed by General Bernard are not necessarily those held by the French General Staff, who have never identified themselves with the "general advanced guard" theory to the exclusion of other forms of grand tactics.

Staff Duties in the Field. (*Le Service d'état-major en Campagne.*) By Colonel Toulorge, Commanding the 72nd Infantry Regiment (formerly Professor at the French Staff College). 504 pp., with 2 maps. 8vo. Paris, 1912. Chapelot. 8s.

This book will be read with interest by all who wish to gain some idea of the probable organization and methods of work of the French Staff in war. The author tells us that his work on Staff Duties in the Field is to appear in three volumes, of which the book under review is the first, and deals with the duties of the Staff before the first battle. Colonel Toulorge disclaims any idea of laying down hard and fast rules for Staff work, but says he wishes to bring forward certain principles relating to the duties of Staff officers which he has deduced from the study of the history of past campaigns. The present volume is divided into three sections as under:—

Section 1 deals generally with what is required of the Staff under modern conditions of warfare, the qualifications which a Staff officer should possess, the work of the various branches of the Staff, and the relations which should exist between Staff officers and their chiefs on the one hand, and between the former and the troops on the other.

As regards the qualifications necessary in a Staff officer, the author apparently considers that calmness is the most important one, and it is curious to note that, although he gives a long list of the qualities which a Staff officer should have, the possession of tact does not appear among them.

Great stress is laid on the necessity for constant study on the part of Staff officers of the ever-varying conditions of war. A Staff officer must, moreover, always be thinking ahead, and should never allow himself to be surprised by the turn of events. It is absolutely essential also, in the opinion of the author, that the Staff should be properly organized, and should know intimately its chief and the troops with which it has to deal. It is pointed out that good Staff work was necessary for success under former conditions when armies were comparatively small, and that it is even more necessary at the present day when the size of armies has so enormously increased.

Section 2 is devoted mainly to a consideration of the organization of staffs and their work during the period of mobilization and concentration. This section contains a specially interesting chapter on the organization of the lines of communication in modern armies and the Staff work connected with it. The author insists that no Staff can

be fit for active service except as the result of the most careful preparation and study during peace, and that unless the Staff is properly organized and ready to take the field with its plans well thought out immediately war breaks out, failure is bound to result.

Section 3 is concerned with the Staff work connected with the operations of field armies up to the first battle. The most interesting portions of this section are the chapters dealing with the work of the Staff as regards—(1) The obtaining of information; (2) the execution of marches; (3) the billeting of the troops; and (4) the writing of operation orders. As regards the question of information, the author says that even the best Staff often obtains false information about the enemy or none at all. For example, during the period from the 11th to the 14th August, 1870, the information about the enemy communicated by the German Great General Staff to the German armies was quite incorrect. Again, between the 23rd and 27th August, 1870, the German Staff were practically in ignorance of the whereabouts of the French forces opposed to them. Similar incidents occurred also in the Russo-Japanese War. The author, however, warns us not to draw too hard and fast conclusions from the fog of war which has existed in the past, for, in his opinion, improved means of communication and the activity of the Press may profoundly affect the question of information in war. On one point, however, Colonel Toulorge strongly insists—namely, that in no circumstances whatever should want of or insufficiency of information be allowed to interfere with the assumption of the offensive if the latter is demanded by the situation.

Chapter XIV, which deals with the subject of writing orders, will be read with particular interest by British officers. The principles laid down are practically identical with those contained in our Field Service Regulations, but the subject is treated in more detail, and some very useful hints are given regarding the preparation of operation orders for forces varying in size from a group of armies to an infantry brigade. The author again in this chapter lays great stress on the necessity for a commander having complete confidence in his Staff and knowing how to use it. He points out that in the 1870 campaign most of the mistakes made by the 1st German Army and the unnecessary hardships imposed on the troops of this army were the direct consequence of the unhappy relations existing between General Steinmetz and his Staff, in which the General had no confidence and which he did not know how to use. Discussing the question of the length of orders, Colonel Toulorge refers to the Japanese regulations, which say that "Every order should be clear, precise, and as complete as possible." The conclusion at which the author arrives is that no restriction as to length should be made as regards the portion of the order in which the task to be carried out is explained, but that the remainder of the order should be as short as possible.

A Doctrine for the Cavalry Combat. (*Une Doctrine sur le Combat de Cavalerie.*) By General Paul Durand. 34 pp. 8vo. Paris, 1912. Berger-Levrault. 9½d.

In this pamphlet General Durand sets forth his own views on cavalry tactics by way of comment on those laid down in the latest revise of the French Cavalry Regulations. After first citing Napoleon's doctrine—that in order to attack with success one must first "fix" the enemy with a portion of one's force, and then manœuvre so as to attack with the remainder from the most favourable position—he proceeds to argue that this doctrine is just as applicable to cavalry actions as to combats of all arms. Cavalry, he maintains, is a cumbrous arm in the hands of its superior commander, in the sense that once definitely committed to action it cannot be recalled nor can its task be modified. It may, therefore, be considered as "fixed" when its commander has been induced to launch it to the attack. General Durand's method of applying the above principles may be very briefly summed up as follows:—(1) To move against the enemy's cavalry as soon as one becomes aware of their presence; (2) to attack it with a portion of one's force as a lure to induce the hostile commander to commit the bulk of his cavalry to action; (3) to move off to a flank with the main body, and gain a position on the enemy's flank; (4) to attack decisively, keeping a reserve in hand as long as possible in order to retain control of events. With regard to (2) General Durand argues that the desire to win will always induce the hostile commander to commit a larger force to action than is absolutely necessary.

The possible annihilation of the "lure" is not, he considers, an objection to the method proposed, as the *melée* will continue long enough for the purpose.

Commenting on the new regulations, General Durand complains that, in recommending convergent attacks, the authorities have ignored the principle referred to above, and are, in fact, advocating manœuvre against an enemy who has not yet been "fixed."

On the other hand, it has been pointed out by a writer in the *Revue de Cavalerie* that if General Durand's method were definitely incorporated as a doctrine, in the French Cavalry Regulations, this might encourage formalism in tactics, while it would not improbably put the enemy on his guard against acting in the manner expected of him.

The Employment of Cavalry in Morocco. (*L'Emploi de la Cavalerie au Maroc.*) By Colonel Riffault. 45 pp. 8vo. Paris, 1912. Lavauzelle. 1s. 3d.

Colonel Riffault served for 14 years in Algeria and Tunisia before the Casablanca campaign, since which time he has seen considerable service in Morocco. The practical experience that he has gained during his campaign in North Africa is put very shortly and concisely in this short volume.

The principal characteristics of the Moorish warrior are his mobility, his knowledge of the ground, his cunning, his indifferent marksmanship,

and his favourite formation in scattered groups. In order to defeat such an enemy the methods of European warfare should be considerably modified.

The following are some of Colonel Riffault's opinions on this point :—

- (1) Advanced, flank, and rear guards should be replaced by cavalry in a "rake-like" formation on all four sides of the column.
- (2) Cavalry should always have some infantry within supporting distance.
- (3) Cavalry should almost invariably employ fire tactics. Galloping after isolated horsemen should be absolutely prohibited.
- (4) Not more than half the men should be dismounted at a time, the led horses being brought up to the firing line when it is necessary to mount.

Coast Defence Warfare and the Strategic and Tactical Co-operation of Army and Fleet in the Russo-Japanese War, 1904-5. (*Der Küstenkrieg und das Strategische und Taktische Zusammenwirken von Heer und Flotte, &c.*) By Captain Polmann, German Marines, Instructor at the Naval Academy. 226 pp., including 10 appendices, 4 maps in pocket at end. 8vo. Berlin, 1912. Mittler. 6s.

This masterly work is a valuable addition to the literature of amphibious warfare. It consists of ten chapters, of which nine end with comments; the last is entitled "Retrospect and Prospect." Chapter I, "Plans of Operations," gives the project drawn up by Alexiev. We find here, too, various Russian calculations as to numbers which each belligerent could assemble, and the reasons for the distribution of her forces in the theatre of war; also her forecasts as to her enemy's plan, and the scheme for the mobilization of her own forces.

The author's comments (page 10) deal first with the difficulties which the distance between capital and theatre of war imposed upon Russia. From page 13 onward he discusses the "first objective," and the employment of each fleet in relation thereto. Russia had to maintain command of the sea in the Far East. Without naval protection Japan's forces could not land on the mainland, which they had to do, since Japan wanted what Russia possessed there. To ensure naval superiority, a Russian attack before declaration of war seemed advisable (such attacks are repeatedly discussed in this work). But Russia wished to defer naval hostilities until naval reinforcements reached the Far East. Rash action might have resulted in the early destruction of her fleet. Dealing with Japan, he discusses possibilities of landings respectively on the east and west of Korea, south-east of Manchuria, and west of the Liaotung Peninsula.

Chapter II, "Strength and Resources," begins with a statement of Japan's military resources. Immediately following this is a description of the Russian higher command (page 21) and a discussion regarding its influence on the operations. At first Admiral Alexiev (Viceroy) was made supreme, General Kuropatkin (senior to him) and Admiral Makarov being placed under him. But when starting for the front Kuropatkin received an Imperial instruction, which read: "In the

control of operations you must follow *your own discretion, but observe generally the Viceroy's instructions.*" "These instructions," as says the author, "contained the germ of misunderstandings." On page 26 we read, with reference to Port Arthur: "(Russia's) false economy reaped bitter retaliation, let alone lost millions she suffered inestimable damage as regards prestige. . . . A serious warning to nations to keep their sword sharp and edged. Money thus spent is never wasted; in the day of peril it bears interest a thousandfold."

Chapter III, "Events from the Beginning of February to the End of April," describes the first attack on Port Arthur. Pages 28-29 give precautionary measures (a) proposed; (b) carried out for the protection of the Russian fleet. Page 30 gives Japanese dispositions when advancing on Port Arthur and Chemulpo. On page 34 we read that Russian military observation parties watching the bays adjoining Port Arthur were totally unacquainted with the appearance of their own ships, and often reported them as hostile. After the posts had been provided with naval officers and signallers (page 35) a great improvement took place. On page 38 are data relating to Japanese disembarkations in Korea (ships, tonnage, boat equipment). Page 41 relates to Russian measures to prevent indirect bombardment and night attacks on Port Arthur Harbour.

Of great interest are the details given concerning the system of command in Port Arthur. An Imperial Ordinance relating to the command of the Kwantung fortified zone had become necessary owing to differences between Alexiev and Kuropatkin. On reaching Port Arthur, Makarov submitted that the fortress commander should be under the admiral commanding the fleet. The Viceroy approved, but Kuropatkin wrote: "Admiral Makarov must first learn to command troops in action . . . if he wishes to conduct operations on land." The Tsar, on appeal, appointed Stössel to command the fortified zone, and selected a separate military fortress commander to serve under him. The author returns to this important subject several times. On pages 157 *et seq.* we read: "Intelligent co-operation of (Russian) Army and Fleet suffered through unsuitable organization of command. . . . The attempt of the supreme military authority (Stössel) to obtain a voice in the control of the fleet was curtly negatived. Besides the naval Commander-in-Chief, there was a naval Port Commander and a naval Coast Defence Commander, who controlled the coast defence flotilla. The coast forts were under the fortress commander (General Smirnov), who held a position more or less independent (of Stössel)." The author then condemns Makarov's scheme (fleet commander to control fortress), and advocates that a naval officer should command a naval base irrespective of relative seniority of military officers serving there; that he should control all naval and military resources in the fortress, but that a senior military officer should command the land front. On page 207 he proposes a military Chief of Staff to the naval fortress command, supported by a Staff from both services, but containing an engineer officer and coast defence expert.

On pages 43 and 44 are given measures taken by Makarov to frustrate blocking attempts. Pages 46 and 47 describe the Japanese landings in Korea and naval co-operation during the march to the Yalu, also transports required by two Japanese divisions.

Pages 48-50 deal with operations against Vladivostok. A criticism of Russia's naval measures is followed (pages 51 *et seq.*) by reflections on the relation between policy and strategy, in the course of which Moltke's writings are quoted. Severe blame is imputed to Alexiev, for deferring mobilization after this was placed within his prerogative. His failure to acquaint the naval authorities at Port Arthur of the rupture of negotiations is also censured, as are the naval authorities who ordered attack exercises of their torpedo craft for the night on which the Japanese attacked. The execution of the Japanese torpedo attacks is criticized, but Togo is justified for not following them up. His action here is taken as an illustration for the necessity of naval action not going beyond military requirements; "it (the navy) should not set itself separate tasks." The author considers however that the Japanese should have taken advantage of the moral effect caused by Makarov's death, and the loss of the "Petropalovsk," to attack.

On page 54 the author gives model orders which should, he considers, have been delivered by the Viceroy in the existing conditions.

Chapter IV, "The Landing of the Japanese Army," quotes divergent opinions by Alexiev and Kuropatkin as to how this should be met. Page 70 (and also pages 125, 126) deal with a Japanese naval landing corps specially formed to assist military disembarkations. The author considers it a superfluous formation. Page 72 gives details as to Russian ordnance withdrawn from ships for land service. Pages 73-75 give Alexiev's directions to the fleet at this juncture, and the disposition of all available Russian forces in May, 1904. The author comments severely on instructions issued to the Russian fleet ordering it to limit itself to reconnaissances by cruisers and torpedo craft, which were "not to be specially endangered." He considers that Russia had a great opportunity early in May. By moving the 1st Siberian Corps from about Ta-shih-chiao to Port Adams, by bringing the 4th East Siberian Rifle Division from Port Arthur to Chinchou, and by allotting to the fleet the double object of attacking transports and drawing away the Japanese fleet, he thinks that important results might have been attained.

On page 99 he discusses the question of command at landings in the face of an enemy, and alludes to British practice in this matter. He considers that the landing of the 2nd Army confirmed the general correctness of the estimate that 10,000 men can be landed in 12 hours given good arrangements. When he criticizes (page 100) subsequent Japanese movements on land, he scarcely seems to take account of the effect that a recent sea voyage and the rainy season must have exercised upon the horses.

Chapter V, "Attack on the Chinchou Position," gives (pages 102-104) detailed data regarding garrison and defences. Commenting upon

the fighting, the author draws attention to the lack of Russian howitzers and mortars wherewith to engage hostile ships in the offing. He thinks that a position south of the Nanshan neck would have served Russia better. The tardy and insignificant aid rendered by the Russian fleet at Nanshan is held to emphasize the need for single control in the case of operations on the coast. The Japanese, too, says he, were handicapped by lack of howitzers when closely supporting attacking infantry.

Chapter VI, "Operation projects after the Landing of the 2nd Japanese Army," may be summed up by the author's words: "At Liao-yang the fate of Port Arthur and the fleet had to be decided."

Chapter VII, "The Fighting in the Area adjoining Port Arthur," begins with a most instructive account of deliberations between Russian naval and military commanders, which testify to divided counsels and fear of responsibility. On page 143 the attachment of naval Staff officers to General Nogi's Headquarters is approvingly noted. On the following page the formation of a naval brigade to act against Port Arthur is noticed. On page 153 *et seq.* the author discusses the question whether the Russian Port Arthur fleet should have attempted to leave Port Arthur altogether in June, and justifies its retention there. He thinks, however, that instead of merely bombarding the flanks of the Japanese land forces in the Kwantung Peninsula, it should have hazarded some action against Japan's fleet. On page 160 *et seq.* he points out the critical condition of the Japanese investing force in June, and the manifold duties which fell to the navy in order to assist the land forces; the activity of the former service is highly commended.

Chapter VIII deals with the siege: a full description of the defences and means of attack is supplemented by an excellent map (No. 4) and by data given on pages 22-25. The author calls attention on page 24 to discrepancies in various accounts as far as armament is concerned. Throughout this chapter the interdependence of naval and military action by Japan is admirably brought out, and various decisions are illustrated from a standpoint which has remained generally unappreciated in previous accounts of the siege.

Commenting on the Russian defence, the author thinks that the moments for naval sorties (23rd June and 10th August) were not well chosen. Egress should have been deferred until the fortress was seriously threatened, and to a period when the approach of the Baltic Fleet would have made naval casualties a serious matter for Japan. He considers it shameful, however, that the fleet perished so supinely in the end.

He holds that Togo might have intercepted and crushed the Russian fleet on the 11th August, and praises Nogi's self-abnegation in sacrificing his troops freely before 203 Metre Hill in response to urgent naval demands for the capture of this point, which entailed the early destruction of the Russian ships in Port Arthur. He also dwells on the difficulties of modern blockade.

The final chapter is especially interesting. "A sea power in conflict with a continental one can never bring about a decision without

simultaneously threatening its enemy's land forces." "The greater the enemy's fleet the greater the risk of a naval battle with the large resources at stake, and the impossibility of replacing losses." "All the more the idea of attack prior to or simultaneously with declaration of war comes into the foreground."

He quotes British opinions as to the unfavourable conditions under which land forces oversea must fight until the navy has obtained command of the sea, and refers to the crisis of 1911. For Germany he advocates a two-power land standard, strategic defensive but tactical offensive for the navy, numerous naval bases and good inland waterways, and co-ordination of high command. In this connection he proposes "inspections" for coast defence similar to the existing German "Army inspections," the former to include the naval forces, coast defences, and Army Corps garrisoned in the coast region. It matters not, says he, if the Army Corps go elsewhere in war if co-operation between army and navy is furthered by such an arrangement. As regards training, he recommends numerous reciprocal attachments between army and navy.

The book ends with a stirring exhortation to both German services.

Cavalry. (Cavalerie.) By Capitaine Loir (État-Major du XXme Corps d'Armée.) 401 pp., with 12 maps and sketches. 8vo. Paris, 1912. Chapelot. 7s.

Captain Loir's book, which has a preface by General Langlois, is divided into three parts. The first deals with reconnaissance, marches, quarters, and mounted and dismounted fighting; the second with cavalry in co-operation with other arms; and the third with cavalry in battle. The author expresses his ideas and imparts instruction by taking concrete cases, usually situations that have actually presented themselves in war, pointing out errors to be avoided and giving what he considers the best solution to be adopted in each case. The situations are so simple and clear, that they are easily understood, and they are mostly so interesting that they attract and retain the attention of the reader.

General Langlois expresses full approval of the book, but at the same time reproaches the author for having taken nearly all his examples from the German cavalry in 1870-71, and points out that the French cavalry of the First Empire gave the world many fine examples of what cavalry can do. He also lays stress on the fact that man is always the same, and that a demoralized infantry, whatever its weapon, will always be a prey to a determined cavalry.

The book was written primarily for the junior ranks of the French cavalry. General Langlois asserts, however, that senior officers of the French cavalry who may have to command forces of all arms will profit by a study of it, for often, when cavalry has failed to render the services which were expected of it, the reason has been that the commander of the force, ignorant of the methods of cavalry action, has not given the cavalry leader a clear, definite, and workable mission

to carry out. It may be said, without fear of contradiction, that senior officers of all branches of our own Army as well as our cavalry officers would profit by a study of this book.

It is to be hoped, therefore, that a translator will be forthcoming, so that the value of the book as far as our Army is concerned may be doubled, and an addition be made to the very small library of works in English on the subject of cavalry.

Instruction in Observation for Battle Training for all Arms. (Anschauungs-Unterricht für die Ausbildung zum Gefecht. Für alle Waffen.) By Captains Lindner and Koelsch. 68 pp., with numerous figures in the text and 12 coloured plates. 8vo. Neu-Ulm a.D., 1910. J. W. Helb. 4s.

The authors maintain that their work can be used as a supplement to the practical training in the field of non-commissioned officers and men. Observation, framing messages, picking up targets, sketching, fire control, &c., can be practised in unfamiliar terrain by means of the coloured plates.

The Defence of Nancy. (La Défense de Nancy.) By General de Lardemelle. 11 pp., with map. 8vo. Paris, 1911. Berger Levrault. 7d.

General de Lardemelle's plea for the defence of Nancy is based partly on its geographical situation, which, he contends, separates the two main German lines of advance, and more especially on the disastrous impression which, in his opinion, would be caused in France by the abandonment of the former capital of Lorraine at the outset of a war.

After adducing evidence to show that the Germans could, without difficulty, concentrate two brigades within striking distance of Nancy in less than 24 hours from the outbreak of war, the author proceeds to examine the means for counteracting this danger. The garrison of Nancy consists of one division, another division is at Toul, and the whole 20th Corps can, we are told, be assembled east of Nancy within 24 hours. As a position for this force, General de Lardemelle recommends a line some 13 miles in length, starting from (left flank) the northern extremity of the plateau of Malzeville, where it would be in touch with the fort of Frouard on the Moselle, and running thence in a semi-circle by Seichamps and Cercueil, to (right flank) the neighbourhood of Ludres, south-west of Nancy, whence touch would be gained with the fort of Pont St. Vincent, also on the Moselle. The above line should, in the author's opinion, be strengthened in peace time by seven batteries armed with 48 to 50 guns, while sites for infantry trenches should be marked out in the intervals.

It is explained in the pamphlet that the object of these measures would be to make Nancy, not an entrenched camp, but a pivot of manœuvre for the 20th Corps.

Some Principles of Maritime Strategy. By Julian S. Corbett. 317 pp. 8vo. London, 1911. Longmans, Green & Co. 9s. net.

From certain criticisms of this book which have appeared, it would seem that there exists a confusion of ideas as to the meaning of the

term "maritime strategy." Yet the author in his introduction makes it clear that by maritime strategy he means something different to naval strategy. We, he says, are accustomed to speak of naval strategy and military strategy as though they were distinct branches of knowledge which had no common ground. The theory of war, however, reveals that there is a larger strategy embracing both, which regards the fleet and navy as one weapon.

It is from this point of view and with the object of indicating the proper function of naval strategy in this larger conception of war that the book is written. Part I is, therefore, devoted to a discussion of the theory of war, the various natures a war may assume, and the effect they have on maritime empires.

Part II enunciates a theory of naval war under three headings, the first of which deals with the theory of the object of naval war—that is, command of the sea; the second discusses the theory of the means of conducting naval warfare—in other words, the constitution of fleets; and the third enters into the question of the methods of naval warfare.

Part III is concerned with the conduct of naval war. In it the inherent differences which exist in the conditions of war on land and sea are first explained. Broadly speaking, the general principles which guide the conduct of war on land are, Mr. Corbett states, three in number: first, the idea of concentration of force; secondly, the idea that strategy is mainly a question of communications; and thirdly, the idea of concentration of effort. He then proceeds to show that the conditions which obtain at sea differ materially from those which give these principles so strong a foundation on land. He contends that the maxim that "the primary object of the battle fleet is to seek out and destroy that of the enemy" is not an invariable rule, and quotes historical examples to prove his contention in this and other points.

The remaining chapters of this part are taken up with a discussion of the modifications which the conditions may impose on the idea of sea command. In Mr. Corbett's opinion, sea command may be secured, disputed, or exercised in various circumstances, which must be considered before any one of them can be definitely selected as the right one to adopt.

The book is mainly of interest to soldiers, in that the intimate relationship which ought to exist between the navy and army in all that belongs to the theory of war is constantly kept in view, the author maintaining that it is quite possible to conceive circumstances in which it would be correct for naval operations to be subordinated to the attainment of the immediate military object.

Staff Work. By Colonel Hubert Foster, R.E. 223 pp. 8vo. London, 1912. Hugh Rees. 3s. 6d. net.

The object of this book is to give instruction in the every-day duties which would fall on the commander or General Staff officer of a small force of all arms on service.

The book is, the author explains, the outcome of many years' experience with Militia in Canada, the United States, and Australia.

Much of the contents can be found in Field Service Regulations, but the latter is necessarily very terse, and moreover applies essentially to a British division. It is therefore somewhat difficult for a beginner to follow. It is with the idea of smoothing away some of these difficulties that this work is published. At the same time, the fact that British operations will be conducted under the above Regulations has been constantly kept in view.

While the book is very likely to assist students in clearing up points on which they may have been in doubt, it is necessary to caution them that portions are already out of date, owing to recent changes in organization.

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The Best National System for Providing the Necessary Military Force : (1) To Secure the Safety of the United Kingdom on Land ; (2) To Support the Defence of the Empire ; (3) To Assist in Maintaining the Balance of Power in Europe. By Major H. L. Pritchard, R.E. J.U.S.I., August, p. 1075.

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The Organization of the Colonial Army. By Lieutenant-Colonel Debon. J.S.M., 1st June, p. 249; 15th June, p. 399.

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Fortnightly Chronicle. Political History. Par M. Francis Charmes de l'academie française. R.D.D.M., August, p. 947.

Russia, Turkey, and Persia. L'Asie Française. May, 1912, p. 178.

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Night Operations (continued). By Captain A. Ledent. L.S.M., 1st July, p. 10; 15th July, p. 99; 1st August, p. 194; 15th August, p. 275.

The Evolution of War. By Lieutenant-Colonel Marchand. J.S.M., 15th August, p. 350.

TELEGRAPHS AND COMMUNICATIONS.

Telephone Transmission. Captain A. D. St. G. Bremner, R.E. P.P.R.E., Paper 4, 1912.

Wireless Telegraphy and Telephony. From *Nauticus*. J.U.S.I., July, p. 997; August, p. 1121.

TRAINING AND EDUCATION.

Training Young Horses to Jump. Part I. By Scarlet Lancer. C.J., July, p. 358.

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The Tactical Training of Artillery. By A. N. Apukhtin. V.S. No. 5, Part I, p. 67.

Communications from the Austrian School of Musketry. Six Schemes for Infantry and Machine-guns, with three sketches. O.M.Z., June, p. 1015.

The German Regulations for Machine-gun Shooting. Communicated by the Austrian School of Musketry. O.M.Z., July, p. 1187.

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MAPS.

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BOOKS, PAMPHLETS, &c., WHICH HAVE BEEN DISTRIBUTED TO REFERENCE LIBRARIES.

- THE ARMY REVIEW, 1st July, 1912.
“Our Indian Empire.”
Artillery at Picardy Manœuvres, 1910.
Report on the Examination for Certificates “A” and “B,” O.I.C., March, 1912.
Report on the Competitive Examination of Officers of the Special Reserve, &c., March, 1912.
Report on Examination of Officers for Promotion, May, 1912.
Report on Army Qualifying Examination, March, 1912.

ABBREVIATIONS

W., published weekly; F., fortnightly; M., monthly; Q., quarterly;
V., at irregular intervals; A., annually.

* Periodicals which can only be purchased by subscription.

Abbreviation.	Name of Newspaper or Periodical.		Price.	Place of Publication.
A.F.	Bulletin du Comité de l'Afrique française ..	M.	2 frs.	Paris.
A.F.H.	Archiv für Schiffs- und Tropen Hygiene ..	½ M.	*	Leipzig.
A.H.M.	Annales d'hygiène et de médecine coloniale ..	M.	3 frs.	Paris.
A.J.	Artilleriskii Jurnal	M.	*	St. Petersburg.
A.M.B.	Artilleristische Monatshefte	M.	m. 2.50	Berlin.
A.M.P.	Archives de médecine et de pharmacie militaires	M.	2 frs.	Paris.
A.M.S.	Proceedings of the Aldershot Military Society		/6	London.
A.N.G.	Army and Navy Gazette	W.	/6	London.
A.N.R.	Army and Navy Register	W.	15 c.	Washington.
A.Q.R.	Imperial and Asiatic Quarterly Review ..	Q.	2/6	Woking.
A.S.C.	Army Service Corps Quarterly	Q.	2/-	Aldershot.
A.S.M.	Allgemeine schweizerische Militärzeitung ..	W.	*	Basle.
B.A.	Broad Arrow	W.	/6	London.
B.Mag.	Blackwood's Magazine	M.	2/6	Edinburgh.
B.M.J.	British Medical Journal	W.	/6	London.
B.P.B.M.	Bulletin de la Presse et de la Bibliographie militaires. (Supplement to J.M.O.B.) ..	F.	*	Brussels.
B.S.C.	Bulletin international des sociétés de la croix rouge	M.	50 c.	Geneva.
B.S.G.	Bulletin de la Société de Géographie	M.	*	Paris.
B.S.G.L.	Bulletin de la Société de Géographie de Lyon ..	Q.	2.50 frs.	Lyons.
B.U.	Bibliothèque Universelle	M.	2.50 frs.	Lausanne.
	Budgets of Foreign Countries			
C.J.	Cavalry Journal	Q.	2/6	London.
C.Mag.	Canadian Magazine	M.	25 c.	Toronto.
C.M.G.	Canadian Military Gazette	F.	10 c.	Montreal.
C.O.J.	Colonial Office Journal	Q.	1/6	London.
Con.	Der Continent	M.	m. 1.25	Berlin.
C.R.	Contemporary Review	M.	2/6	London.
D.M.S.	De militaire Spectator	M.	1 fr. 50	Haarlem.
D.M.Z.	Deutsche militärärztliche Zeitschrift ..	½ M.	*	Berlin.
E.	Engineering	W.	/6	London.
Ec.	Economist	W.	/8	London.
Emp.R.	Empire Review	M.	1/-	London.
E.R.	Edinburgh Review	Q.	6/-	London.
F.M.F.	Feuille militaire Fédérale	V.	40 c.	Berne.
F.Rev.	Fortnightly Review	M.	2/6	London.
I.J.	Intendanski Jurnal	M.	*	St. Petersburg.
I.M.G.	Indian Medical Gazette	M.	1 R. 4 a.	Calcutta.
I.M.T.	Indisch Militair Tijdschrift	M.	1 fr. 50	Batavia.
Inj.	Ingeniërnii Jurnal	M.	*	St. Petersburg.
I.R.	Internationale Revue (Armeen und Flotten)	M.	m. 3.25	Dresden.
J.A.M.S.	The Military Surgeon. Journal of the Assoc. of Military Surgeons	M.	35 c.	Carlisle, Penn.
J.A.S.	Journal of the African Society	Q.	6/-	London.
J.D.A.M.	Jahrbücher für die Deutsche Armee und Marine	M.	m. 2.50	Berlin.

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J.M.S.I. ..	Journal of the Military Service Institution ..	2 M.	50 c.	Governor's Island, New York.
J.M.S.S. ..	Journal of the Military Scientific Society (Russian)	Q.	1 Ro. 50 kop.	St. Peters- burg.
J.R.A.M. ..	Journal of the Royal Army Medical Corps ..	M.	2/-	London.
J.S.M. ..	Journal des Sciences militaires	$\frac{1}{2}$ M.	*	Paris.
J.U.S.I. ..	Journal of the Royal United Service Institu- tion	M.	2/-	London.
J.U.S.I. (N.S.W.)	Journal of the United Service Institution of New South Wales	A.	*	Sydney.
K.M. ..	Kavalleristische Monatshefte	M.	k. 2.	Vienna.
K.T.Z. ..	Kriegstechnische Zeitschrift	M.	m. 1.50	Berlin.
L. ..	Lancet	W.	/7	London.
L.A.F. ..	Comité de l'Asie française, Bulletin	M.	2.25 frs.	Paris.
L.B.M. ..	La Belgique militaire	W.	25 c.	Brussels.
L.R.I. ..	La Revue d'Infanterie	M.	2 frs.	Paris.
L.S.M. ..	Le Spectateur militaire	F.	2 frs.	Paris.
M.A.G. ..	Mittn. über Gegenstände des Art.- u. Genie-Wesens	M.	*	Vienna.
M. Art. ..	Memorial de Artillería	M.	*	Madrid.
M.B.A.R. ..	Monthly Bulletin of the Bureau of American Republics	M.	25 c.	Washington.
M.C. ..	McClure's Magazine	M.	25 c.	New York.
M.I.E. ..	Memorial de ingenieros del ejército	M.	*	Madrid.
M.P.G. ..	Mitteilungen Petermann's	M.	m. 2.	Gotha.
M.R. ..	Marine-Rundschau	M.	m. 2.	Berlin.
M.W.B. ..	Militär-Wochenblatt	$\frac{1}{2}$ W.	20 pf.	Berlin.
N.A.R. ..	North American Review	M.	35 c.	New York.
N.C. ..	Nineteenth Century	M.	2/6	London.
N.D. ..	National Defence	Q.	2/6	London.
N.G.M. ..	National Geographic Magazine	M.	25 c.	Washington.
N.I.A. ..	Nation in Arms	M.	/3	London.
N.M.B. ..	Neue Militärische Blätter	W.	60 pf.	Berlin.
N.M.T. ..	Norsk Militært Tidsskrift	M.	*	Christiania.
N.R. ..	National Review	M.	2/6	London.
O.M.Z. ..	Strefleure militärische Zeitschrift, zugleich Organ der militär-wissenschaftlichen Vereine	M.	*	Vienna.
P.J. ..	Preussische Jahrbücher	M.	m. 2.50	Berlin.
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R.C. ..	Revue de Cavalerie	M.	*	Paris.
R.d'A. ..	Revue d'Artillerie	M.	*	Paris.
R.D.D.M. ..	Revue des Deux Mondes	$\frac{1}{2}$ M.	3 frs.	Paris.
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Abbrevia- tion.	Name of Newspaper or Periodical.		Price.	Place of Publication.
R.M.L. ..	Revista militar	F.	200 reis	Lisbon.
R.M.S. ..	Revue militaire suisse.. .. .	M.	*	Lucerne.
R. of R. ..	Review of Reviews	M.	/6	London.
R.T.C. ..	Revue des Troupes Coloniales	M.	2 frs.	Paris.
S.Z.A.G. ..	Schweizerische Zeitschrift für Artillerie und Genie	M.	*	Frauenfeld.
T.M. ..	Tour de Monde.. .. .	W.		Paris.
U.E. ..	United Empire (Royal Colonial Institute Journal)	M.	1/-	London.
U.S.A. ..	United States Artillery Journal	2 M.	50 c.	Fort Monroe.
U.S.C. ..	United States Cavalry Association Journal .	Q.	50 c.	Fort Leaven- worth.
U.S.G. ..	United Service Gazette	W.	/6	London.
U.S.I. ..	United States Infantry Association Journal	Q.	50 c.	Washington.
U.S.M. ..	United Service Magazine (Colburn's)	M.	2/-	London.
V.R.K. ..	Vyestnik Russkoi Konnitsi	F.	*	St. Peters- burg.
V.S. ..	Voyennii Sbornik (Military Journal).. .. .	M.	*	St. Peters- burg.
V.T.H. ..	Vierteljahrshefte für Truppenführung und Heereskunde.	Q.	*	Berlin.

APPENDIX II.

LIST OF RECENT CHANGES IN THE ARMY IN INDIA.

The Government of India have decided that the present designations of officers of the medical services enumerated below should be altered as follows :—

Present designation.	Altered designation.
Principal Medical Officers of Divisions, when the appointments are held by Surgeon-Generals	Deputy Director of Medical Services
Other Principal Medical Officers of Divisions and Brigades	Assistant Director of Medical Services
Sanitary Officers of Divisions	Deputy-Assistant Director of Medical Services (Sanitary)
Staff Officer for Medical Mobilization Stores	Deputy-Assistant ¹ Director of Medical Services (Mobilization)

¹ Sanctioned in Army Department Letter No. 101-17 (P.M.O. 1), dated September 27th, 1911.

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